SOVIET AID IN RELATION TO INDIA'S ECONOMIC DEVELOPMENT

Thesis Submitted for the Degree of
DOCTOR OF PHILOSOPHY
IN ECONOMICS

By
Lilawati Tripathi

Under the Supervision of
Professor Mohammad Shabbir Khan
Professor and Head of the Department of Economics

Department of Economics
Aligarh Muslim University Aligarh
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PREFACE

Foreign aid is an interesting subject. The term foreign aid denotes the flow of financial and technical resources from a developed country to an underdeveloped country. Large-scale international aid is a recent fact in the history of the nations. There is a widespread belief that more economic aid should be provided for underdeveloped countries. It is natural that developed nations should provide aid to developing countries on human grounds. It is inevitable however, that political factors enter into virtually all development decisions to some extent. In addition, there are many cases in which a political motive has been paramount. For some times, there has been a growing acceptance of the desirability of providing assistance for regionally-oriented projects. Thus the strategy of aid and its implementation are both complex.

India has been receiving aid for her economic development from so many western countries. Among the donor countries the USA and the USSR are the most important. Both the countries have been providing aid to India in their own way. The contribution of both the countries to

the economic development of India is immense. So far American aid to India is concerned it has been described and critically appreciated by a number of economists. Professor P.T. Bauer wrote a small but important book on "United States Aid and Indian Economic Development " in 1959. Sri S. Chandrasekhar's highly informative book on 'American Aid and India's Economic Development' appeared in 1965. But so far Soviet aid to India is concerned there are few books which are entirely devoted to the subject. Therefore, a sincere but humble effort has been made in the present work to present an over all picture of Soviet aid to India and its impact on the economic development of the country. The period covered is from the time of the First Five Year Plan to the present day.

The present work divided into nine chapters including the conclusion. Chapter first deals with the concept of underdeveloped country and the nature of foreign aid. It also describes the forms of aid and objective of Soviet aid. Chapter second deals with the strategies of Indian planning and the policy of the Soviet aid to India. Chapter third deals with industrialisation of India and the Soviet aid. An effort has been made in the chapter to indicate how the Bhilai Steel Plant, the Iron and

Steel Plant in Bokaro, the Heavy Machine Building Plant at Ranchi, the synthetic Drugs Plant at Hyderabad etc., have been contributing to the gigantic task of the economic development of our country. It is also pointed out how the impact of the establishment of modern large scale industry in India would in the first instance have an effect on the supplies available to and increase the markets of all other Indian industry. Chapter fourth deals with the Soviet aid in agriculture and its impact. Chapter fifth describes the co-operation of the USSR and India on the development of trade. Chapter sixth deals with the technical assistance provided by the Soviet Union. Chapter seventh deals with the military aid though the available data were meagre. In chapter eighth a comparison of the USA and the Soviet aid to India has been made. While emphasizing the effort of the USSR in economic assistance the chapter discusses the programme of the USA aid and its policies. An important realization is that foreign aid cannot be divorced from foreign policy and national interest. In conclusion the impact of the Soviet aid on the economic development of the country is traced and analysed and, at the same time, India's independent policy of utilising aid is appreciated.

I acknowledge with thanks and deep appreciation the assistance of the Cultural Relation Officer, Information Department of the Embassy of the USSR in India. He provided valuable information when requested.

I am indebted in particular to my Professor Mohammad Shabbir Khan, Senior Professor and Head of the Department of Economics for his kindness, encouragement, valuable suggestions and supervision of the work.

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Lilawati Tripathi
LILAWATI TRIPATHI

CONTENTS

Preface		i - iv
Contents		v - vii
Chapter: I:	THE UNDERDEVELOPED COUNTRIES AND FOREIGN AID:	1 - 33
	The concept of Underdeveloped Countries. The Concept of Foreign aid. The History of Aid. The forms of Aid. The Principles of Aid giving. The Political and strategical interest in Aid giving. The USSR foreign aid.	
Chapter: II:	ECONOMIC DEVELOPMENT AND BASIC STRATEGY OF PLANNING IN INDIA:	34 - 64
	Concept of Economic Development. Basic strategy. Agriculture. Basic Industry. Formation of Capital. Investment and Growth. Economic Relation of India with the USSR.	
Chapter: III:	INDUSTRIALIZATION OF INDIA AND THE SOVIET AID:	65 -134
	Industrialisation and Economic Growth. Heavy Industries and Soviet aid. Some Aspects of Steel Plants - Bhilai and Bokaro. Soviet Assistance in Power Generation - Neyveli, Bhakra, and Ramagunj. Oil Industry and Aid. The Ophthalmic Glass Projects and Precision Instruments Plant. Soviet Collaboration in Medical Industry. Assessment.	

Chapter: IV: SOVIET AID AND AGRICULTURAL DEVELOPMENT: 135 - 148

Establishment of Agricultural Farm at Suratgarh and Jetsar. Aid for seed farms. Tractor Factory Gift of Food. Economic Impact of Agricultural Collaboration.

Chapter: V: ECONOMIC DEVELOPMENT THROUGH TRADE WITH THE USSR: 149 - 177

International Trade and Economic Development. Soviet Foreign Trade Policy. India's Trade with the USSR. First Trade Agreement. Second Trade Agreement. Soviet Experts. Third Trade Agreement. Fourth Long-term Trade Agreement. Trade Agreement in 1971. Main Principles of the Success. Impact of Trade with the USSR on India's Economic Development.

Chapter: VI: TECHNICAL ASSISTANCE: 178 - 193

Economic Development and Technical Assistance. Difference between capital assistance and the Technical Assistance. Bombay Technological Institute. Technical Aid in Steel Industry. Training in Heavy Machine. Workshop at Suratgarh Farm. Technical Aid in Power Generation. Technical Assistance in Oil Industry. Assessment of Technical Aid.

Chapter: VII: MILITARY AID: 194 - 203

Difference between Military aid and Economic Aid. Quantity of Soviet Aid. Indo-Soviet Treaty of 1971. Assessment.

Chapter: VIII: COMPARISON OF SOVIET AID WITH THE USA AID TO INDIA: 204 - 247

The USA and the Soviet Policy of Foreign Aid. Political, Economic and Humanitarian objectives. Kinds of USA Assistance. American Aid to Indian Agriculture. PL 480 and Its Criticism. American Aid to Communication and Transportation. The USA Technical Assistance. Impact American Aid on India's Economic Development. Contrast between the USA aid and the Soviet Aid.

Chapter: IX: C O N C L U S I O N: 248 - 263

APPENDICES:

A - Principal Countries Supplying Aid for India's Economic Development. i

B - Chronology of Soviet-Indian Economic Co-operation. i - xiii

BIBLIOGRAPHY i - vii

CHAPTER I

THE UNDERDEVELOPED COUNTRIES AND FOREIGN AID

1 - The concept of underdeveloped countries
2 - The concept of foreign aid
3 - The history of aid
4 - The forms of aid
5 - The principles of aid giving
6 - The political and strategical interest in aid giving
7 - U.S.S.R. foreign aid

The Concept of Underdevelopment

The rich nations of the world are remarkably few in number. They lie in the temperate zone. The poor countries lie mainly in South and Eastern Europe, in Asia, Africa and Latin America and their economies are regarded as underdeveloped in comparison with the few rich lands whose economies reveal a wider diversity of activity embodying the fruits of science and technology and heavy investment of capital.

Underdeveloped countries are characterised by a high degree of subsistence production with a very limited application of technology.

There is no ceilling to the degree of development possible and that this applies just as much to underdeveloped countries as to their rich neighbours. The epithet of 'developed' or 'underdeveloped' is not based upon potential but rather upon existing levels of wealth and material welfare, but the term 'underdeveloped has a dynamic implication in that it suggests that there is a margin of resources(human and material) that can be developed.

A developed economy gives a high per capita income since it is associated with a more varied economic structure whereby science and capital play an increasing part and agriculture, using a smaller proportion of the labour force, functioning with higher efficiency.[1] One might label a country underdeveloped if its government considers development a 'problem' in a way which calls for positive policy. The expression underdeveloped is admittedly not very happy. Therefore the word 'developing' is used now a days in the sense of underdeveloped. Poverty may be regarded as the one of the main characteristics of underdevelopment. Professor Harvey Leibenstein gives the following economic characteristics of underdeveloped areas:

1 - A very high proportion of the population in agriculture, usually some 70 to 90%.

2 - "absolute over-population" in agriculture, that is, it would be possible to reduce the number of workers in agriculture and still obtain the same total

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1. Alan B. Mountjoy. Industrialisation and Underdeveloped Countries, London 1963, p.

output.

3 - Evidence of considerable "disguised unemployment" and a lack of employment opportunities outside agriculture.

4 - Very little capital per head.

5.- Low income per head and, as a consequence, existence near the "subsistence" level.

6 - Practically zero savings for the large mass of the people.

7 - Whatever savings do exist are usually achieved by a landholding class whose values are not conducive to investment in industry or commerce.

8 - The primary industries, that is, agriculture, forestry, and mining, are usually the residual employment categories.

9 - The output in agriculture is made up mostly of cereals and primary raw materials, with relatively low output of protein foods. The reason for this is the conversion ratio between cereals and meat products, that is, if one acre of cereals produces a certain number of calories, it would take between five and seven acres to produce the same number of calories if meat products were produced.

10 - Major proportion of expenditure on food and necessities[1].

Professor Higgins gives four categories of underdeveloped countries on the basis of per capita income. First, there are countries which have per capita incomes low enough to put them into the underdeveloped category, but which have utilised known resources, and which are currently undertaking enough industrialisation and agriculture improvement to bring substantial increases in per capita income. Second, there are countries whose per capita incomes are currently very low (under $ 100 per year), which do not appear to have abundant resources relative to the size of their populations, but where per capita incomes is currently rising. In these countries the rise in income must be accelerated not just sustained. Third, there are countries which are poor and stagnant, in the sense that per capita incomes, show no rising trend, but which are relatively rich in resources. Fourth, there are countries which are very poor (with per capita income, say below $ 100 per year), which are stagnant and which

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1. Harvey Leibenstein, Economic Backwardness and Economic Growth, New York, 1957, pp. 40-41.

are also poor in resources.[1] According to Jacob Viner a useful definition of an underdeveloped country is that it is a country which has good potential prospects for using more capital or more labour or more available natural resources, or all of these, to support its present population on a higher level of living, or, if its per capita income level is already fairly high, to support a larger population on a not lower level of living.[2] Generally underdeveloped countries are over-populated. Their exports are very limited. Their economic forces are generally con rolled by some other force than their government. The basic factor for low per capita income is poverty. In fact, the great problem of underdeveloped countries is their poverty and vicious circles arising from it.

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1. Higgins B, Economic Development Principles, Problems and Policies, Central Book Depot. Allahabad, 1963, pp. 21-23.

2. Jacob Viner, International Trade and Economic Development, Free Press, Glencoe, 111 U.S.A., 1952, p

The Vicious Circle of Poverty

The vicious circle of poverty according to Nurkse "implies a circular constellation of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty. Particular instances of such circular constellations are not difficult to imagine. For example, a poor man may not have enough to eat, being physically weak, his working capacity is low, which means that he is poor, which in turn means that he will not have enough to eat, and so on. A situation of this sort relating to a country as a whole, can be summed up in the trite proposition: 'a country is poor because it is poor'. Perhaps the most important circular relationship of this kind are those that afflict the accumulation of capital in economically backward countries"[1]. Thus low real income reflects low productivity, the low productivity is largely due to the lack of capital which is the result of the small capacity to save. The limitations and deficiencies imposed by

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1. Ranger Nurkse, Problems of Capital Formation in Underdeveloped Countries, Oxford 1964, pp. 4-5.

poverty react upon the size of markets and capacity to save, and thus limit capital formation. J.K. Galbraith made a highly illuminating analysis of the approach to poverty. He discussed some of the causes to which many of us attributed the poverty of nations, depending upon ideology, personal preference, convenience, or pure chance. He lists the following causes:

"The people are poor because they prefer it that way.

The country is naturally poor.

The country is poor because it has been kept in a state of colonial oppression. Poverty is caused by insufficient capital. Poverty is caused by ignorance".[1] While many of these popular attributions are self-contradictory and have limited justification, there may be an element of truth in each. The fact of the matter is that "poverty is the product of a variety of cause. The particular combination of causes varies from country to country depending upon culture, environment, and historical evolution".[2] Thus, the cause must be analysed

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1. John Kenneth Galbraith:The Approach to Poverty,Department of State Press Release,No.351,June 1,1962,and also in his Economic Development,Harvard University Press,1964, pp. 15-19.

2. Lloyd D. Black,The Strategy of Foreign Aid,Princeton, 1967, p.61.

separately for each country before remedial actions are planned. There may be some common characteristics of poverty but too often generalizations are not reasonably safe.

For economic development removal of poverty is essential. It is a difficult task. It requires resources. Land, labour and capital are by no means the sole determinants of economic progress; technical knowledge, and effective Government and planning are also important. The understanding of resources, the will to use them, the application of capital and technical know-how are the means by which resources become active elements in economies. We must regard the possession of resources as permissive rather than deterministic.

Development involves not merely economic changes but also social advance and popular enlightenment and in many underdeveloped countries it introduces new sets of values and new concepts of society and government. No path to development is likely to be smooth, nearly all newly developing countries to day necessarily plan their economic and social metamorphism in terms of a number of three, four or five year plans. One of the difficulties

in initiating economic development in many underdeveloped countries lies in over coming institutional opposition. Here, social systems, often based upon concepts of inherited value, are far more g rigid than those of western Europe ever were and severely restrain opportunities for individual advancement. This places more responsibility for economic development upon the government than has been usual in most developed countries where governmental influence has tended to be indirect.

A growing body of economic theory supports the view that economic development is not an inevitable process but must be created and energetically advanced. This may be done by a variety of coordinated measures designed to interrupt the free play of social and economic forces. Capital formation is an important economic force. It is helpful in breaking the vicious circle of poverty on the one ahand and making economic growth possible on the other. Capital formation requires an act of investment as well as a capacity to save. Sometimes foreign aid helps in the formation of capital. In fact foreign aid plays a substantial role in the economic growth of underdeveloped country.

India As An Underdeveloped Country

India has varied and rich natural resources, she has able and well trained leaders and she has competent planners. Yet with all these assets it has remained a poor country and upto the present its efforts at economic development have not produced very impressive results.

As Professor J.K. Galbraith writes "The present diagnosis of the causes of underdevelopment, with its stress on capital, technical assistance, and planning does not fit a country such as India too badly. India has an effective government, there is a substantial measure of literacy, she has a backlog of administrative and entrepreneurial talent, there is a solid commitment to the goals of social justice and social progress. At the same time, the propensity to consume is high and the rate of saving is low, and the problem of capital supply is especially serious for that part which must be obtained from abroad. Under these circumstances, attention has naturally been focused on the question of financial support to investment".[1]

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1. John Kenneth Galbraith, Economic Development, Harvard University Press, 1964, pp.43-44.

When an underdeveloped country with a sound plan for using capital, trained man power, and technical knowledge starts on the path of economic progress certain difficulties arises in initial stages. It requires equipment for industrialisation and other manufactured commodities and other which are not available from internal resources. The country is to face the problem of foreign exchange requirements and foreign exchange savings. To solve such problems external assistance becomes inevitable. External assistance, if available serves two function simultaneously. It helps in getting adequate supply of foreign exchange and also supplements the investible resources in the country i.e. balance of payments difficulties are an inevitable aspect of development at this stage. Since the development of an economy like that of India requires initially imports on a large scale of machinery, capital equipment and other producer goods as well as of consumer goods like foodgrains, foreign exchange is bound to be a bottleneck for some time to come".[1] In such a situation foreign aid is accepted. India accepts economic aid for such purposes In the First Five Year Plan period there was provision

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1. Government of India, Planning Commission, First Five Year Plan, p. 65.

for about Rs.400 crores for foreign exchange requirements of the development programme. The proportion of the percentage of the foreign aid utilised to the total investment was 5.8 in the First Plan and 21.1 in the Second Five Year Plan. The essential significance of aid is that it provides the developing economy with additional real resources. It enables the recipient country to import more than it exports, and thus enables it to do more investment for economic growth, or more defence for security.

Concept Of Aid

According to I.M.D Little and J.M. Clifford, the word aid should refer "to the value of the subsidy implicit in the total flow of resources. Thus, grants of convertible currency are certainly aid to their full face value. But loans contains only an element of aid, sometimes an insignificant element. But in general practice the word refer to the nominal value of the direct and indirect flow of financial and other resources from government of rich countries to those of poor countries".[1]

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1. I.M.D.Little and J.M.Clifford, International Aid, George Allen and Unwin, London, 1965, p.13.

The United Nations has its own definition of economic aid. It considers "that economic aid consists only of outright grants and net long-term lending, for non-military purposes, by governments and international organisations. The chief aid-giving countries take a much broader view. In particular they include private capital investment and export credits, even for relatively short periods. This is quite understandable, it is pleasant to feel that you are helping your neighbours and at the same time increasing your own profits".[1] "Foreign aid" is the expression most frequently used to describe the flow of financial and technical resources from the developed world to the underdeveloped world. The flow is not entirely a one way street, for the recipient countries themselves contribute significantly in local man power, materials, and resources on a co-operative basis. In varying degrees, they also contribute ideas, raw materials and man power to the donor nations. Foreign aid, like foreign policy of a nation, is not easy to understand. Foreign aid is generally connected with national interest of donor as well as recipient countries. The process of economic development of underdeveloped countries

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1. Frederick Benham - Economic Aid to Underdeveloped Countries, London, 1961, p. 24.

is not identical, therefore the concept of foreign aid may change from time to time. According to Thomas Balogh foreign aid to day has an international importance. "Foreign aid, from being a voluntary contribution by sovereign nations, is becoming slowly (as it is already within communities organized as states) a civic or human duty to contribute in proportion, or more than in proportion to wealther to the progress of the less privilged populations. Foreign aid will then become a conscious weapon controlled internationally to combat poverty and unequality in an international framework".[1]

History of Aid

The history of aid is as old as the world charity, but the term foreign aid has a recent origine. Some scholars try to connect the history of economic aid with the establishment of the World Bank. But World Bank's loans though useful, are not aid in a strict sense. Some writers start the history of aid from Marshall Plan which

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1. Thomas Balogh, Economic Strategy and the Third Plan, Calcutta, 1963, p. 13.

aimed at the post war reconstruction of Western Europe. The famous Point-Four Programme is also regarded as a starting point for the history of aid. The Colombo Plan 1955 had the same merit. However, both the programme emphasized technical assistance rather than actual amount of aid. The PL 480 Programme of development assistance, The establishment of USA Development Loan Fund in 1957 may be regarded as the beginning of the history of aid in an international sense. The USA Export Import Bank provides loans to underdeveloped countries. Since 1956 USSR has been increasingly providing aid to a number of countries of Asia and Africa.

The Forms of Aid

Aid can be provided in the form of any good or service imported by a developing nation. At issue is whether aid programmes should finance some imports rather than others, and also how repayment should be made. Some times decisions are based on the domestic political or economic concerns of the donor government. It may prefer to ship military equipment, food stuffs, educational advisors, or equipment and services for capital projects,

because it can readily draw on existing stocks because of excess capacity, or on manpower willing to be recruitment for services in the Third World. The donor may also seek to introduce a range of goods or services into the receiving country in order to establish a stronger competitive position for subsequent sales. It may be motivated by the relative ease of obtaining legislative sanction for giving military material and food, though the law makes reluctant to authorised shipment of a general range of imports. In this way subsidiary purposes are introduced into the act of giving aid.

Aid is some times provided as long terms loans as well as short term loans. Private investment is also regarded as a form of aid. Military aid and economic aid are also the forms of aid. Both programmes add resources to the recipient society and save tax revenues and foreign exchange for other uses. Both progammes may purchases - similar and even freely interchangeable goods and services. Either can be used to promote to a wide variety of donor or recipient objectives, whether they pertain to national security or to social reforms.

While planners measure aid requirements in terms of investment gaps and trade gaps, some countries aid continue to be programmed in terms of budget deficits, objects

costs, and programme loans. Like the trade gaps, programmes loans are scarcely distinguishable from aid to meet balanced of payments deficits. A programme loan, however, sounds more constructive and respectable than financing a deficit or a gap.

Most aid-financed imports are distributed in the receiving country through normal commercial channels; they are sold and paid in the local currency. The proceeds accrue to the government. Aid thus provides the government with funds that can be used to meet its needs for local currencies. In this way aid to meet a balance of payment deficit also provides financing for a budgetary deficit. The difference between these two forms consists essentially in how the requirement is calculated. If the need is based on the budget deficit, it may exceed or fall short of the amount needed to cover the balance of payments deficit. Conversely, meeting the balance of payments deficit is unlikely to generate an amount of local currency that precisely meets the budget deficit.[1]

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1. Jacob J. Kaplan, The Challenge of Foreign Aid, London, 1966, pp. 288-89.

Bilateral Aid and Multi-lateral Aid

Bilateral aid is the assistance provided by one developed country to another developing nations directly. Most foreign aids are bilateral in nature. Multilateral aid is provided by international organisation. Multilateral aid has become increasingly popular with donors and recipient alike. For the bilateral donors, this channels for dispensing aid offers certain advantages such as simplicity-periodic transfer of funds without additional administrative staff. From the view point of the receipients multilateral aid is an impersonal source of assistance lacking political motivation and the onus of charity.[1] According to V.K.R.V. Rao and Dharam Narain the major difference between bilateral and multilateral aid is the freedom associated with the latter to buy from any source of supply determined by the recipient. There is also more of expert examination from outside both at the aid-giving stage as well as later in the case of aid received from international source, while in the case of bilateral aid such examination is usually undertaken and joint basis.[2]

1. Lloyd D. Musolf, The Strategy of Foreign Aid, London, 1967, p. 106.
2. V.K.R.V. Rao, & Dharam Narain, Foreign Aid and India's Economic Development, Asia Publishing House, 1963, p.90.

Technical assistance does permit a more personal act of giving a people to people approach. It finds expression primarily in domains traditionally associated with social welfare, such as public health and education, farming and public administration. It is a form of assistance that seems peculiarly uncontaminated by crassness and considerations of pecuniary gain.

Private investment, private enterprise and public aid are also forms of aid. There are some fear for nationalisation yet private investment is helpful in economic development of a country.

Loans and grants are provided for economic development, but loans will delay the progress of aid recipients by at least the cost of meeting interest and amortization payments. It is grants that will expedite progress towards viability and it is such progress that is the purpose of aid.[1] Some developing countries prefer loans to grants. Because when a donor country gives grants to an underdeveloped country it generally has some strig with the aid and some times tries to interfere into the politics of the recipient country. Loans are generally paid off. And therefore little chance of the interference of the donor country. Of course loans may be made on condition that they are spent on certain

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1. Jacob, J. Kaplan, The Challenge of Foreign Aid, London, 1966, p. 318.

goods, such as capital equipment supplied by the lending country. The borrowing country might have been able to buy similar goods more cheaply elsewhere so that what is gain on the savings it may lose on the roundabouts.

India has a bitter experience of this type. The famous wheat loan to India was carried by American ships alone. Indians ships were not allowed to bring the wheat from U.S.A. to India. The result was that India paid millions of rupees for the traffic.

The Principles of Aid Giving

The possible interests of donors can be divided into (1) commercial and (2) political or strategic.

Some times the donors economies as a whole are benefited from aid giving "to maintain their present standards, the development countries must continue to expand. The value of international trade among developed countries is much higher than that of the trade between developed and underdevelop-ed countries or among under developed countries alone. The greater the number of developed economies, therefore, the higher the total volume of international trade and the better the

opportunities for expansion for any one country. In the long run, then only the development of the economies (and the markets) of the now less developed areas will assure the continuing expansion and development of the now developed countries.[1]

There is another argument, dating from Hobson and Lenin, to the effect that capitalist countries cannot absorb their own output of manufactures, and must therefore export capital and develop markets abroad to preserve full employment at home. The acceptance by the governments of capitalist countries that they too can influence the level of demand at home, and the capital-hunger still exhibited by highly developed countries when demand is maintained, should have shaken even the most doctrinaire out of this belief by now.

Counter-arguments are some times put forward to the effect that in the long run, development of the under-developed world might harm the present developed countries. One such argument is that their development would raise the prices of raw materials, and so turn the terms of trade against the wealthy manufacturing countries. This is a mere speculation.

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1. I.M.D. Little and J.M.Clifford, International Aid, George Allen and Unwin, London, 1965, p.80.

To sum up, there is good reason for supposing that the subsidised transfer of capital or skill which is properly called aid, is a genuine economic sacrifice.

Volume of Aid

How much aid a country can afford depends on of course on number of factors such as the rate at which it can increase its savings ratio, the productivity of capital in general, the rate of growth in population, the degree to which access to foreign markets is facilitated and the like. There is no unique way of determining the point at which external indebtedness becomes unsafe. But this anxiety about ability to meet debt payments points to a number of conclusions which need to be emphasised.[1]

The Political and Strategic Interest in Aid Giving

The purchase of fire-power from poorer countries, either directly or via the formation of alliances has

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1. I.G. Patel, Foreign Aid, Allied Publishers, Bombay, 1968, p. 20.

existed throughout history. The military aid, as also the defence - support, given in the Far East and South East Asia by the U.S.A. is in the line of long tradition.[1]

When a country gives aid to any another country, there is very chance of some political understanding between them. Even when aids are provided on the ground of humanity there also some hidden interest may be discovered. In fact aid giving has always a strategy of direct or indirect benefit. It has also some connection with international situation. It moves with the intensions of power blocks. Even such institutions as United Nations or World Bank are not altogether free from political and strategical interest in providing economic aid to under-developed countries.

Soviet Foreign Aid

As early as 1952, at the Moscow Conference, Russian statesmen begun to make statements about achieving "international co-operation and rapid industrialisation" in less developed countries. These statements were

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1. I.M.D. Little and J.M. Clifford, Op.cit., p. 83.

followed by offer of technical assistance and even of "whole factories". But two years were still to pass, with Stalin's death acting to change Russian policies, before any practical step were taken to help in the industrialisation of underdeveloped countries.

With the growing number of newly independent nations, it became obvious that the coming contest between the two political system would, at least partly, be fought over the allegiance of the "uncommitted" third of the world's population. It was Chester Bowles, one of the earliest and most active supporters of aid to foreign countries, who foresaw that Russia could not afford to remain passive in view of the American aid programme". "With the communist emphasis on economics as a basis for politics, "he said, it is unlikely that the Soviet Union will long sit idly by, once our efforts show signs of success. I can testify to the extraordinary interest and concern which Soviet representatives show in point four.

But before this interest was translated into deeds, Russia and the other communist countries continued to do their best to fight the impact of American aid programmes around the world. The vehement campaign against

the Marshall Plan, and later against other aid programmes was initially cut rested to a great extent, to the local communist parties. The compaign against American aid in the Russian press served as an indicator of Russian concern with the American assistance programmes, and as a guide for the communist parties all over the world. This antogonism was soon manifested in the United Nations as well. In the early fifties, at one of the meetings of the U.N. Economic and Social Council, the representative of Poland Kala-Szuhey, stated that the United States engaged in foreign aid programmes" because Wall Street bankers, not content with 3 per cent interest on International Bank Bonds, want the 20% and more which can be derived from direct control of the resources of the underdeveloped countries.

Concern with the results of American foreign aid programmes must have been growing constantly if Premier Khrushchev himself had to join the chorus of communists who criticised it. In one of his speeches, intended to woo underdeveloped countries, he stated "If the capitalist gentlemen wish to help backward nations as they constantly and clamorously declare, they are welcome to do this. The underdeveloped nations, however, must bear in mind that the capitalists never give anything gratuitously because this contradicts the very essence of capitalism".

Thus, the ground was fully prepared both politically and propagendistically when Russia began her own foreign aid programmes to countries outside the communist bloc. The beginning were characterized by caution, they carefully proved the ground. Aid started in 1954 with an allocation of $11 million and progressed through the years, until, in 1961 it reached well over $1 billion. The aid commitments made by the Soviet Union and her communist allies to countries outside the communist bloc (excluding Cuba) totaled $7.1 billion of which Russia contributed 70%, the eastern European communist countries 22%, and communist China the rest.

Even in the choice of the recipient countries Russia followed to a great extent, America's lead. Thirty countries on all continents were were included in the Russia aid programme.

Although the Soviet foreign aid programme originated from the desire to compete with the United States, Russia nevertheless, maintained different methods of offering and paying the amounts committed. There is good reason to believe that no more than 30% of the Soviet economic aid commitments have actually been disbursed thus far. This

situation results, to a great extent, from the special methods Russia and the eastern European countries use in their aid agreement. First they agree to furnish aid, then they set the figures. Only later do they work out specific project for which the aid is to be used and last of all are methods of payment settled. It is clear that with such a method, there must be a difference between communists and actual outlay of funds or their equivalent. Russian assistance has as well another characteristic: it is given in the form of large line of credit. Outright grants constitute only a small fraction of Russia foreign aid. Interest rates, which Russia and communist propaganda publicizes as being the lowest possible reach 2.5%, although there have been some interest free loans as well as some with interest rates as high as 5%.

Russia aid shows a general tendency to concentrate its major effort in the few areas which are considered crucial in the contest with the west. These countries are Afghanistan, Yugoslavia, Indonesia, Egypt, India, and until recent months, Iraq, although the emphasis continues to change along with new changes in the international scheme. In some countries Russia, aid has exceeded that given by the United States. The United Arab Republic, Indonesia and Afghanistan besides India, have been the largest recipients of Russian aid.

The Soviet economic aid should be clearly distinguished from aid given for military purposes. Such aid which is being given in billions of dollars to a number of countries - primarily to Indonesia, Egypt, Syria, recently to India, and in growing availabilities to Yemen represents a completely different and separate aspects of Russia support for non-aligned nations and it is nor included in the figures just mentioned.

The fact that some of the Russian war material has not been of the latest vintage has given rise to the assumption that these arms deliveries are of no consequences, as far as the Russia treasury is concerned, because these arms are obsolete and therefore play no part in the Russian defence programme. Recent appraisals of Russian arms deliveries have proved that this suppositions is not completely correct. Among the arms delivered to Egypt and to Indonesia have been the most modern types of tank, planes(Mig - 21) submarines and even the most sophisticated and recent types of rockets.

Arms shipments of course, furnish the easiest - means of public demonstration of Russia aid and power. But, it would be erroneous to assume that only "show-case" investment are of basic or primarly concern for Russia. Though there have been some example of Russia aid for the building of stadiums, luxury hotels, and high ways,

in general it is given to develop the basic conditions for the economic progress of the recipient nations. According to a State Department appraisal, Soviet bloc economic assistance is divided as follows according to its uses: 57% manufacturing; 12% multi-purpose projects and agriculture(including reclamation, irrigation, and hydro-electric power projects); 12% transport and communication 11% municipal service, 3% commodity credits; and 2% gold foreign exchange and funded trade deficits.

Among the projects built with Russian aid are many at which the Russian point with pride such as the Bhilai Steel Mill in India, which produced one million tonnes of steel a year, cement, plants, textile mills, sugar refineries, assembly plants machine-tools, factories, fruit canneries; such projects as the Aswan Damin in Egypt, and mineral exploration in Afghanistan, India, and Pakistan.

In this general survey of Russian foreign aid the problem of technical personnel deserves special mention. The number of Russian technical advisers by far exceeds that of the United States. It is estimated that the about 10,000 Russian technicians are working all over the world.

This "exports" of Russian personnel to non-communist countries is supplemented by a most generous policy of scholarship for students from the developing countries. A special university has been established for these students the Friendship University in Moscow, dedicated to the late Congolese leader, Patorice Lumumba, and the Russian authorities are doing their best to effort the foreign students conditions superior to those in which Russian students themselves are living.

The programme of aid has obvious political objectives. In setting these objectives Russia has been rather modest. In many areas where for countries there had been no trade of Russian influence, Russia was ready to extend aid if only to establish its presence. In doing this, the Russians try to manifest the selflessness of their aid. As opposed to the United States, the Russia do not ask too many questions, do not demand prior planning, and do not examine the feasibility of a nation's development projects. Their first concern is to respond to the desires, if not the needs of the recipient nations. And of course, having extended aid, they have a channel for contact with the country in question. Agreements for trade, cultural exchange education, and training usually follow as aid agreement. Once this is done, a base of

contracts is established with leading labour union leaders, key officials, students groups, and trade circles. An attempt to re-orient the development of the recipient country to a "socialistic" pattern is natural fallow up of these efforts. In this attempt, the Russians use the much advertised argument of "the short cut to success". They point at the development of the Soviet economy since revolution as a proof that this is feasible. Lack of knowledge of the real conditions which prevailed in Russia before the revolution is an important factors in this argument. The Soviet officials do their best to present pre-revolutionary Russia as an underdevelop-ed country, whose economy was as backward as those, for instance, of India, Burma, or Ghana before they started on their way to economic progress.[1] One Soviet author has written "The Soviet Union strive to contribute all within its power to helping the peoples of (underdeveloped) countries to overcome poverty, economic backwardness, exploitation and coercion on the part of imperialist powers and foreign monopoly capital. The Soviet people consider such aid important and useful from the humaniterian point of view as well as from the stand point of the struggle for peace

1. Jacob A. Malin, Four Hundred Million Dollars, New York, 1964, p. 194.

and peaceful coexistence of all people throughout the world" That competition with capitalist aid was an important factor in the Soviet decision to provide aid at all is suggested indirectly in a quotation by the same author from a speech by Khrushchev, who said," one cannot but regard the assistance which the capitalist countries are preparing to give to these states which have recently won their independence as a kind of assistance rendered by the Soviet Union to these states. Indeed where no Soviet Union, would the monopoly groups and imperialist states have offered aid to the underdeveloped countries".[1]

The Soviet economic aid facilitated in underdeveloped countries the maximum utilisation of internal resources and encourages employment of local organisation for the training of personnel and construction work. The construction and assembly work on projects is entrusted to local companies, technical data and blue prints are transmitted to the nationals of the recipient country without any reservation. This increases not

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1. U.Mmolov, Economic Co-operation between the USSR and Underdeveloped Countries, Foreign Languages Publishing House, Moscow, quoted in International Aid by I.M.D. Little and J.M. Clifford, p. 28.

only the volume of Soviet technological experience to the people of recipient countries. The Soviet economic assistance aims to strengthen the poor nations struggle against monopoly, capital to create the pre-conditions for their rapid economic development and for independent national economy. This is why it is chiefly channelled through the public sector which is called upon to play a decisive role in the development of self-sustaining national economy. The economic conditions of poor countries amply show that the private sector is in no position to develop the basic industries because of its capitalistic outlook and conservative approach to problems of national development.[1]

The Soviet economic assistance to underdeveloped countries rests on a stable economic foundation, it does not emerge out of surpluses of a capitalist economy seeking profitable investment abroad nor does it strive to continue the status quo in the economic conditions of the underdeveloped areas.[2]

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1. D.S. Nag, Foreign Economic Policy of Soviet Russia, Agra, 1964, p. 14.

2. Ibid., p. 15.

CHAPTER II

ECONOMIC DEVELOPMENT AND BASIC STRATEGY OF PLANNING IN INDIA

1 - Concept of Economic Development

2 - Basic Strategy

i - Agriculture

ii - Basic Industry

iii - Formation of Capital

iv - Investment and growth

3 - Economic relation of India with the USSR

What Is Economic Development

Fundamentally, economic development is the process by which per capita gross national product is increased. Although the term "economic development" is of recent vintage, the basic concept is as old as economies itself. Some professionals may draw a distinction between "economic development (the process by which an economy moves from a less advanced stage to one more advanced) and "economic growth"(a rising level of national output within a given stage). We prefer to use the two expressions interchangeably, since the two process are so closely interrelated and the objectives so similar. Benjamin Higgins, in his excellent text on Economic Development - Problems, Principles, and Policies, reluctantly defines the concept as "a discernible rise in national and per capita real income, widely diffused throughout the population, that continues for two or more generations".[1]

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1. Higgins, B, Economic Development - Principles,Problems and Policies, Central Book Depot,Allahabad,1963, p. 21.

This approach permits us to focus on a characteristic of the process of economic development that is fundamental for both analysis and strategy: development depends not so much on finding optimal combinations of given resources and factors of production as on calling forth and enlisting for development purpose resources and abilities that are hidden, scattered, or badly utilised. Economists have long realised this situation with respect to labour and have coined the term 'disguised unemployment" to describe it. But just as an underdeveloped economy can mobilise vast hidden reserves of unskilled labour from its redundant peasantry, so it is able to make capital entrepreneurship, and all the other "pre-requisits" climb unexpectedly on the band wagon of economic development once it has started to role.[1]

If backwardness is due to insufficient number and speed of development decisions and inadequate performance of developmental task, then the fundamental problem of development consists in generating and energising human action in a certain direction.[2]

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1. Albert O. Hirschman: The Strategy of Economic Development, New Hover, Yale University Press, p.5.

2. Ibid., p. 25.

Fiscal policy on the other hand, is considered a more reliable means of curving a deficiency of demand because it can increase the economy's spending stream directly and makes or forces re-employment decisions in the process, it does so in the absence of any prior improvement in the "business climate".[1]

In the First Five Year Plan, it has been stated that it is no longer possible to think of development as a process merely of increasing the available supplies of materials goods; it is necessary to ensure that simultaneously a steady advance is made towards the realization of wider objectives such as full employment and the removal of economic inequalities. Maximum production, full employment, the attainment of economic equality and social justice which constitute the accepted objectives of planning under present-day conditions are not really so many different ideas but a series of related aims which the country must work for. None of these objectives can be pursueded to the exclusion of others; a plan of development must place balanced emphasis on all of these. For instance, even the limited

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1. Ibid., p. 26.

objective of increased production cannot be attained unless the wider objectives of social policy are constantly kept in mind and steadily pursueded. On the other hand equality and social justice will have little content unless the production potential of the community is substantially raised. Development thus conceived,is a process which calls for effort and sacrifice on the part of the entire body of citizens. For such effort and sacrifice to come forth psychological conditions have to be created which provide an incentive for all to give of their best.[1]

What is needed is a transformation of the system so as to secure greater efficiency as well as equality and justice. The central objectives of planning is to create conditions in which living standards are reasonably high and all citizens, men and women have full and equal opportunity for growth and service.[2]

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1. Government of India, Planning Commission, First Five Year Plan, p. 28.

2. Ibid., p. 29.

Plan's Objective

Self-reliance had been the objective of all the plans of development. This was an objective which called for great effort and sacrifice on the part of all. The nature and quantum of the assistance India had received in the formative years itself had a bearing on how soon it achieved self-reliance. If they knew with some certainty the quantum of foreign aid they were likely to get over a period they could plan accordingly. But the present position is one of uncertainty and is fought with danger. In this context it was the duty of economists to educate the public on this question of foreign aid and self-reliance.

Economists had been in the forefront of those who had in the past decade or so helped to create a climate of world public opinion in favour of the need for transfer of resources from more developed countries to less developed countries.

Self-reliance was the philosophy of Gandhiji. His main aim was to make villages self-sufficient with goods produced within them being used by themself. This does not alienate one village from the other; it only means that a village would strive first for its own self-sufficiency and then go to help the village that did not

become self-sufficient. He thought that the internal market would suffice to provide cut lots for consumption. Khadi programme provided the hub of all industrial activities of the villages. Their production will be in the hand of individuals, while the state will provide social services. Sudden or large scale social changes through erection of economic stress will erode the stability of the system, and destroy villages and village crafts".[1]

In fact the major objective of all the four five year plans of India has been self-reliance. It is now realised that country should not depend much more on foreign aid in form of capital or food. "The Commission has also emphasised that our attempts at self-reliance must include a very comprehensive programme of export production. They have made a detailed discussion of how export of traditional and non-traditional exportable commodities can be increased in both traditional and non-traditional markets".[2] Self-reliance may be taken to

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1. M.K. Gandhi, Socialism of My Conception, Bharatiy Vidya Bhavan, Bombay, 1966, p. 122.

2. Khan, M.S., Planning and Economic Development in India, Asia Publishing House, Bombay, 1970, p.80.

mean a gradual increase in both the marginal as well as the average propensity to save. This depends on the rate of growth of national income which, in its turn, will depend on the rate of effective utilisation of foreign aid. The recent event have once again endorsed the objective in the Plan which called for greater self-reliance. The objective, however, of improving the people's standard of living may not be achieved in short period, if India decided to refuse foreign aid totally. In the last four years during which dependence on aid was considerably reduced, the economy had been virtually stagnant. External assistance should be accepted without strings. There should be contingency plans as a safe-guard against unilateral stoppage of aid or a drop in export earnings. The need for setting a proper rate of exchange for domestic resources should be stressed. The government should increase domestic resources which are convertible into foreign exchange. The long term objective should be to mobilise all economic resources. To depend or not to depend on aid is a touchi issue and there are bound to be differences of opinion. In the Third Plan it was proposed to achieve self-reliance by the mid seventies. In the fourth Plan it was postponed to 1980. As a free country it should be our objective to become self-reliant as soon as possible.

The First Five Year Plan was essentially a plan of preparation for laying the foundation for rapid development in the future. The main considerations that had been taken into account were:

1 - The need for initiating a process of development that will form the basis of the much larger effort needed in the future;

2 - The total resources likely to be available to the country for the purpose of development;

3 - The close relationship betwee n the rates of development and the requirements of resources in the public and private sectors;

4 - The necessity of completing the schemes of development initiated by the central and state governments prior to the commencement of the Plan;

5 - The need to correct the maladjustments in the economy caused by the war and the partition.[1]

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1. The First Five Year Plan of India, p. 70.

Agriculture

Agriculture has been one of the basic strategy of planning in India. The First Five Year Plan and subsequent Plans described the need for agricultural development. Measures like water supply, land improvements, the use of fertiliser, technical assistance, improved organisation etc., were advocated for raising agricultural output. "Agricultural products form nearly half of the net national output. Beside supplying raw materials to industries, like sugar and textile, it provides the bulk of the country's export. In the total geographical area of 811 million acres, about 300 million acres of net area are cultivated annually in India, the gross cultivated area being of the order of 350 million acres".[1] However, incomplete integration of agriculture in the market economy is a great problem in India. The cultivators, in general have no effective control on price mechanism. "The absence of an integrated capital market militates against the balanced of growth of agriculture and thus of economy as a whole"[2] A better planning of mechanisation

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1. P.C. Mahalanobis, The Approach of Operational Research to Planning In India, Asia Publishing House, Bombay, 1963, p. 10.
2. Thomas Balogh, Notes on Indian Economic Strategy in Economic Strategy in Third Plan, Asia Publishing House, Bombay, 1963, p. 45.

and distribution of implements and improved seeds will be needed along with development of fertilizer and irrigation facilities.

The supply of fertilizers, seed and irrigation to all farmers has been very crucial. The main problems faced with regard to fertilizers are the short supply, uneven distribution, high prices, unavailability to plants due to lack of irrigation. The main aim of the Government's fertilizer policy is to establish a capacity of 3.7 million tons(and 3.5 million tons for production) for the Fourth Plan and about 5.0 million tons by 1975. In order to achieve rapid increase in production, improvements will have to be concentrated in areas which are most responsible and where the application of technological methods can result in greatest benefit. The community development projects which were conceived primarily as a programme of intensive development of selected areas were to raise the level of agricultural production. Community development has now been combined with Intensive Agricultural Areas Programme. This is an effort to focus attention on agricultural production. The physical basis for acceleration of production is being established. New technology is now available to breakout low productivity.

A price policy favourable to farmers is a necessary condition for agricultural development. Arrangements for local market, good transport and farm-equipment are essential. However, average cultivator lives in an "environment that rewards abundant production with low prices, allows the cultivator to be victimized by exploitative middlemen and local money lenders, and offers him little incentive to acquire cash beyond what he needs for his taxes, rents, and debt obligations. It is an environment, in short, that does not efficiently convert the cultivator's talent energies and motivations into decisions to produce as much as market as much as he can".[1]

It is one of Professor Lewis basic contentions "that a serviceable rural development programme in India must deal with the several aspects of the rural economy in an integrated fashion. An isolated agricultural development effort unrelated to, and unsupported by, other kinds of rural policies would be deemed to failure almost surely".[2]

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1. J.P. Lewis, Quite Crisis in India, Asia Publishing House, Bombay, 1965, p. 146.

2. Ibid., p. 142.

Food Problem

Food is also a strategic problem of the country. Some times flood, some times famine, sometimes both together, bring the country near trembling point, yet India is trying to achieve self-sufficiency in food production, and had set 1972 as a target for ending USA P^L 480 import. India is already on the path of green revolution. The strategy stresses increased fertiliser production, a greater population control campaign, stricter coordination in food distribution arrangements, and use of special seeds that will provide larger yields.

Industrialisation

A basic strategy of economic planning in India is its industrial sector. This sector has emphasised on heavy and basic industries such as steel, coal, oil, power and chemicals. India has large resources of some of the reachest iron ore in the world. There is a large potential of hydro-electric power. The basic and heavy industry will provide the foundation on which the manufacturing industry

depend. The proper strategy would be to bring about a rapid development of the industries producing investment goods in the beginning by increasing appreciably the proportion of investment in the basic heavy industries. As the capacity to manufacture both heavy and light machinery and other capital goods increases, the capacity to invest(by using home-produced capital goods) would also increase steadily and India would become more and more independent of the import of foreign machinery and capital goods".[1]

It was realised in the beginning of Second Five Year Plan that "the basic strategy of planning in India should be on the one hand to increase investments in the heavy industries and also on expenditure on services to increase the purchasing power and create fresh demand and, on the other hand, to increase the supply of consumer goods by increasing investment and production as much as possible in the small and house-hold industries to meet the new demand".[2]

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1. P.C. Mahalanobis, op.cit., p. 26.

2. Ibid., p. 23.

Side by side the basic industry, India gives emphasis on cottage and small scale industries also. Cottage industries are largely centered on the villages, and use labour-intensive technique to make traditional goods. A number of leaders of the country are in favour of small scale industry, though usually they save relatively less capital.

Any programme for the future development of small scale industries should take into consideration the utilised capacities now existing in the sector. Before making further investment to establish new units, it would be necessary to provide raw materials to the existing ones so that their capacities, both production and employment, are utilised more fully. The development of small scale industries will have to be more properly coordinated with that of the national point of view. There should be no duplication of efforts. The common production programme idea, according to which targets for production are set for industrial units in the large and small scale sectors, was evolved during the first plan and implemented in the case of few industries during the Second Plan. For various reasons, it was not pursued vigorously during the Third Plan. It is clearly now essential to take this up on a systematic basis, and make it a success.

The development programme of small scale industries does not include the entire range of small scale manufacturing activity. The traditional industries like rice milling, oil crushing, cotton ginning, though well developed, need to be modernised and rationalised. Moreover, these industries have good scope for decentralisation on a co-operative basis. It seems, therefore, necessary to bring these also into the programme of development.

The "industrial estate" programme which has achieved considerable success in urban areas did not attain the same success in semi-urban and rural areas. This indicates that industrial estates alone cannot act as agents of development. There is need for an integrated approach in which industrial estate, as an important component, can play its role. Intensive integrated planning which aims to bring together the various development programmes and base further growth on their mutual inter-dependence is needed. The centre and the states will have to resort more and more to this type of intensive planning for making the programme of spatial decentralisation a success.

The public sector had a phenomenal growth since the First Five Year Plan. It has risen from five enterprises with an investment of Rs.29 crores to 97 enterprises with an investment of Rs. 4,700 crores at present. The problem of running them profitably was a complex one" but it has to be faced and a consensus arrived at without further loss of time in the context of the difficult times through which the country is passing". There are fourfold task for public sector undertaking. They were:

1 - Maximising the rate of economic growth and building the necessary industrial base.

2 - maximising consumption levels consistent with the first objective;

3 - reduction in inequalities in income and promotion of equality of opportunities;and

4 - preventing concentration of economic power in private hands.

The success of the public sector enterprise would depend on the objectiveness of their management.

An industrial base has already been made with the help of the USSR. This matter is described in the next chapter. The projected surge of industrialisation during thepast Five Year Plans is very large. The Government of

India is aware of the fact of monopolistic tendency and concentration of private economic power. The nationalisation of banks and ceiling of urban property are some of the measures to remove the inequality between the poor and rich. A firm step like that of the Government of Pakistan is needed to handle the big capitalistic families of India. The management of public sector has not been so successful as that of private sector. But professional management organisation are growing rapidly and some public enterprises are showing great vitality in their performances. However, great effort is necessary to bring revolution in industrial management, so that over all growth rate may not decline.

It is of paramount importance to stimulate and mobilise saving in the economy and to use the resources with maximum economy and efficiency. Increased saving are directly a function and of incomes and of restrain on all non-essential consumption. The saving of the community whether it is in the household sector or in the corporate sector, public or private are raised to a higher level in a sustained manner. It is necessary also to capture a larger proportion of the savings for the public sector to undertake priority investments as also to sustain public consumption on essential social outlays such as

education, health, water supply and nutrition.

Necessary efforts for the resource mobilisation could be undertaken and sustained to an adequate extent only if the burden of sacrifice is equitable and the weaker sections of the people are protected. For both growth and social justice, price stability was an essential infra-structure. The Government is conscious of the need to undertake urgent and concrete steps for price stabilisation so that inflationary pressures on the horizon are avoided and both income and investment are duly safeguarded. Substantial improvement in the performance of the economy is called for to achieve economic growth. "No other social goal is more strongly approved than economic growth. No other test of social success has such nearly unanimous acceptance as the annual increase in the Gross National Product. And this is true of all countries developed or underdeveloped; communist, socialist or capitalist".[1]

The development of basic industries has been a strategy of Indian Planning so that a high rate of economic growth should be achieved and sustained in the

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1. J.K. Galbraith, The New Industrial State, Calcutta, 1967, p. 173.

long run. There is also a purely imperative for India in that this country has abundant natural resources for steel production, and their full utilisation is a self-evident must, all the more so as an expert market for Indian steel has been permanently created by the world wide steel shortage and should be exploited to reduce India's vast balance of payments deficits. Steel is intimately linked with the development of essential industries. These are in turn, vital to meeting the basic needs of our people raising their standard of living. A high rate of steel production generally has a high correlation with national income. The development of heavy industries and their impact have been discussed in the Third chapter.

Capital Formation

The essence of capital formation, according to Nurkse, is diversion of a part of society's currently available resources to the purpose of increasing the stock of capital goods so as to make possible an expansion of consumable output in the future.[1]

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1. Ragnar Nurkse, Problems of Capital Formation in Under-developed Countries, Oxford University Press, Bombay, 1964, p. 2.

Capital formation from internal sources is essential for India. The future fortune of our country depends on the rate of savings. The rate of investment is a significant factor of economic growth. The domestic saving is possible through increased production.

Another source for capital formation is external capital, country like India need not cut itself off from the economic resources of the rest of the world in its pursuit of economic development. The last 20 years are have see n the multi-national sharing of the advances made in technology and business organisation initially in the industrialised countries of the west. Vast areas in the south and south east Asia owe their amazing strides in prosperity to the coordination of the needs and capacities of their economic with those of world markets.

The flow of foreign trade helps a country to have capital accumulation. "The amount of gain from trade depends, however, not only on the amount of foreign goods obtained per unit of real cost involved in the production of the export commodities, but also

on the relative desirability of the import commodities as compared to the commodities which could have been produced for home consumption with the productive resources now devoted to production for export".[1] But some times underdeveloped countries suffer through foreign trade "available statistical data show that from about 80 years, particularly since the end of world War I, terms of trade moved distinctly unfavourably to countries producing goods".[2] However, development of foreign trade in many cases has played a substantial part in economic development.

However, India's economy is to grow faster and therefore it is proper to think in terms of strategy of development.

In this context we are to study the impact of Soviet Aid on India's economic development. India not only follows the Soviet method of planning but also seeks technical and economic co-operation with the USSR.

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1. Jacob Viner, Studies in the Theory of International Trade, London, 1937, p. 560.

2. C. Bettelheim, Some Basic Planning Problems, Asia Publishing House, Bombay, 1961, p. 52.

Investment and Growth

The rate of economic progress will partly depend on the investment and partly on its effectiveness. The experience of the three Five Year Plans has demonstrated the difficulty of raising the rate of domestically financed investment. Even if greater success can be achieved than can at this juncture be confidently expected, the utmost effort will be needed to secure the highest possible return for such limited investment as will prove practicable. For the Third Plan the rate of increase in income was to be accelerated from 3½% to over 5% (really 6%), or by 40(70)%, while investment was only to increase from 11% to 14%, or just over 25%. There was of course no physical impossibility about this task. The fact that a considerable investment both in industry(steel) and agriculture (major irrigation works) has by no means yielded its full fruits during the Second and Third Plan is obviously a great help. But to obtain full yield in future will necessitate energetic and coherently planned action. It will not be an easy task. The price mechanism cannot at present in India automatically ensure optimum allocation of resources or their efficient utilisation.

To increase physical productivity of capital investment is also one of the main strategies of economic planning in India. India has not yet advanced properly in this direction. There is desire to accelerate the economic development of the more backward regions of the country. The backward areas have grave handicaps to make up advances. Housing, roads, transport, public utility have to be provided and training schemes are to be arranged. All this represents a grave strain on the resources of India. The administrative and management capacity are also to be advanced for proper functioning of the economic growth.

The Process of Growth:

Basic Factors in Economic Growth - "The level of total production in any economy depends on the size of its labour force, the supply of known natural resources, the stock of capital, the efficiency with which these factors of production are combined, and the level of technology, including labour skills. The rate of increase in total production thus depends on the rate of growth

of the labour force, the rate of discovery of new natural resources, the rate of capital accumulation, the rate of technological progress and acquisition of skills, and rate at which efficiency in organising production is improved."[1]

Even such a simple statement provides some guidance as to proximate causes of higher standards of living. Without capital accumulation, resources discovery, technological progress, or improved organisation, increases in output are impossible.

It is the problem of capital accumulation which enforce India to accept foreign aid. The flow of international aid acts as a transfer of production power and an engine of growth. More domestic saving of India has not been able to sustain the development programmes which entail heavy investment outlay. With insufficient domestic sources of desired rate of growth is difficult to achieve. Some kind of gap-filling foreign assistance is necessary to maintain a stipulated rate of investment and growth. Additional resources in the form of foreign aid permit higher level of import which warrants higher rate of development. Therefore the need of foreign assistance has been strategic for India.

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1. Higgins, B. United Nations and the US Foreign Economic Policy, Richard D.Irwin Inc.Homewood, Illinois,p.14.(1962)

Economic Relation of India with USSR

The history of the Soviet Indian State relation is only fifteen years old. But this historically short period resulted in good achievements for the peoples of our countries. The relations between the USSR and the Republic of India are an example of the successful and fruitful realisation, in practice of the principle of peaceful coexistence.

The Soviet Government considers peaceful co-existence not only as the exclusion of war but also as a system of mutual relations among states with different social systems, which provides broad contacts in all the spheres of economic, political, scientific and cultural life as well as in trade by observing the principle of full equality and mutual benefit.

The Soviet people regard with understanding the aspiration of the Indian people for developing an independent national economy, achieving its progress through the foundation and development of modern industry and the raising of material level of this basis. This understanding is revealed in continuous development and consolidation of friendly relations, in extensive

development of Indo-Soviet technical and economic co-operation, in construction of industrial enterprises and other projects.

Nobody can speak today about the industrial progress that India has made in recent years without a reference to the vital role that the Soviet Union has played in achieving that progress.

The striving of the USSR to help India to strengthen her economic independence, to raise the living standards of the Indian people is realisation, in practice, of peaceful and human principles.

This help has been given without any ulterior motives, without any strings, without any attempt to whittle down India's independence or impose on her an economic mould she does not desire. Indeed, this help has been given with a feeling, with an awareness that it is the international duty of the Soviet Union, as a socialist country that was the first to break ramparts of imperialism, to support a country fighting for its political freedom, and when that freedom has been won, to help it to provide the economic foundation for it. That is why not only in this country but in many other parts of the

Afro-Asian World too, the development of industry, particularly of heavy industry, is integrally connected with Soviet co-operation.

The Soviet Union at present, is rendering economic and technical assistance to more than 20 countries of Asia and Africa in constructing about 500 industrial and other enterprises in various branches of economy, education and health protection. Long-term credits of over 32000 million roubles have been granted to these countries.

To the Indian people it is broadly known that the Soviet Union renders assistance to India in the construction of 40 large industrial and other projects in such important branches of economy as metallurgy and heavy machine building, coal and oil industry, electric power etc.

The Soviet Union granted India long-term credit amounting to a total of Rs.484.3 crores for financing the delivery of machines and equipment to these projects as well as for sending Soviet experts to India to render technical assistance and for training Indian personnel in the USSR.

These credits are very favourable for India being granted for a period of 12 years on an interest of 2½% per annum. The great advantage of credits given by the USSR lies in that their repayment is effected through rupees, which are used by Soviet foreign trade organisations to purchase the goods of Indian exports. It does not create additional problems for the Indian economy by making her balance of payments more acute and does not effect the Indian foreign exchange reserves but guarantees the increase in the marketing of Indian goods. Thus making a good contribution to the expansion of Soviet-Indian trade.

The outstanding statesman of our times and wise leader for our country a great friend of the Soviet peopl e, the late Jawaharlal Nehru, attached great importance to the development of Indo-Soviet-Techno-Economic Collaboration.

It is necessary to point out that at present some of the biggest industrial enterprises which have to play a very important part in the creation of India's independent national economy are being constructed in the states of North-Eastern India with the assistance of Soviet Union.

These enterprises will be of paramount importance because they will supply new-type of equipment and machinery for other modern enterprises which will produce such industrial materials in which India is now experiencing acute shortage. Soviet prestige, though not openly staked on the success of the total planning effort, is involved in the success of particular projects. The full weight of Soviet resources, capital, technical and managerial skills, are concentrated on a small number of carefully selected projects, which in most cases have been accorded the highest priority in India's Five Year plan. Of particular attraction to India is the importance accorded to training and managerial responsibility of Indians during the establishment of the project, which on completion is turned over to full Indian control. The Bhilai Steel Mill project and Oil exploration ventures in Gujarat have been clear successes. On the other hand the Ranchi (Bihar) heavy machine-constructing plant has suffered from serious administrative difficulties on the Indian side and is experiencing a slackening of demand during the present recession. On balance, however, the successes clearly outweight the failures.

The criticism to the effect that Soviet promises of aid were insincere having proved false, two opposing hypotheses remain, assuring that an evolution of the Indian economy in a communist direction is intended. First, that industrialisation, which once started becomes an irresistable process, may be regarded as a means for unbalancing the economy ultimately creating economic chaos and so producing the long predicted "crisis of capitalism" to be followed by the establishment of socialism. An incidental advantage from this point of view would be the rapid growth of the urban protetarial, thus providing a class basis favourable to the growth of communism. It is a matter of lively and indeed vital debate whether of Five Year Plan represent a correct economic balance. Criticism of imbalance and gigantiesm have long been heard in the west and in recent years with growing force in India itself. However, it must be stressed that the choice of emphasis has been India's the Soviet Union merely benefitting from the coincidence of views. While the question of intention must remain in the realm of hypothesis, it may be suggested that the pattern of recommendation for developing countries is that pursued by the Soviet Union itself. This lead to a second and more tenable hypothesis that "the Soviet Union aims, or

at least originally aimed, to expert its own pattern of industrialisation, with a view of demonstrating that its method represents the true path to rapid development."[1] In this regard some measures of success has been achieved, even Jawaharlal Nehru acknowledged India's indebtedness to Soviet experience. Of particular importance was the influence of Soviet economic thought on P.C. Mahalanobis, Chief architect on the Second Five Year Plan. Yet it is neither consistently opportunistic nor ideologically wrong to be influenced by a great movement. It has been suggested "that in all the underdeveloped countries, a viable political order depends no less on the present agricultural policy than on the future rate of industrialisation, and the chances of subessential are inversely proportional to the degree to which local political elites are ready to act upon this rather obvious observation. If this hold good for India, which the mounting agricultural crisis indicates to be the case, then Soviet policy is totaly failing to take advantage of the situation, either for subversive purposes or the purpose of exporting a Soviet agricultural model."[2]

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1. P.J. Eldridge - The Politics of Foreign Aid in India, Vikash Publication, Delhi, 1969, pp.55-57.

2. Billerbeck, Soviet Bloc Foreign Aid to the Underdeveloped Countries, p. 14.

CHAPTER III

INDUSTRIALIZATION OF INDIA AND SOVIET AID

1 - Industrialisation and economic growth

2 - Heavy Industries and Soviet aid

3 - Some aspects of Steel Plants--Bhilai and Bokaro

4 - Soviet Assistance in Power Generation - Neyveli, Bhakhra and Nardnagan j

5 - Oil Industry and aid

6 - The ophthalmic Glass Projects and Precision Instruments plant

7 - Soviet Collaboration in Medical Industry

8 - Assessment

Industrialisation of India and aid

Industrialisation is one of the most important factors for economic growth of an underdeveloped country. There are many reasons for the underdeveloped countries to walk on the path of manufacturing industry. Professor Mountjoy cites a number of conditions that underdeveloped lands wish to ameliorate, and go on to consider just why the development of manufacturing industry is regarded as the best means of such amelioration. The customary objects of industrialisation policies are to provide work for growing population, to raise the standard of living by increasing the per capita net national income and, often, to improve balance of payment situations. Various other reasons have sometimes been cited or imputed in particular cases, one especially being the desire for national prestige which an industrial economy could give over fellow primary producers".[1]

Industrialisation is required to achieve a prosperous life. Human requirements are so big today that they can be satisfied only by large-scale industrial production. The people want to eat nutritious food with plenty of variety, to have enough consumers goods and cultural facilities. They need well-appointed dwellings.

Moreover, it is always necessary to have definite resources for upholding country's independence, protecting people's freedom and its achievements in the building of a new life from all outside encroachments. All these are perfectly justified desires, meeting the demands for rapid technical and cultural progress which is the spirit of our time.

"Economic development is not synonymous with industrialization alone, but applies to all sections of an economy and implies a relative change in their order of importance with application of science and technology raising productivity per worker and releasing labour and resources for yet other productive tasks. All sectors (agriculture, mining, manufacturing industry, commerce, science) should advance."[1]

Key Factors in Industrial Development

According to Hollis B. Chenony there are three basic factors of developing economies:

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1. Mountjoy, Alan B. Ibid., pg 16.

1 - Factor proportions

2 - Availability of foreign exchange

3 - The rate of growth

The optimum pattern of economic development obviously varies widely with the endowment of available economic resources. Individual mineral resources, specific types of agricultural land etc., are reflected in the capital requirements of individual sectors and determine the desirability of specific types of primary production. The ability of a country to secure foreign exchange is another key factor in determining the desirable extent of industrial development. The rate of growth affects the pattern of investment. Foreign exchange earnings are fairly independent of the rate of growth. The rate of growth will also act on the composition of investment through its effects on final demand. As per capita incomes increase, the proportion of income spent on manufactured consumer goods of all kinds may be expected to increase.[1]

Recent estimates of the materials requirements that are likely to be associated with various growth rates in the underdeveloped countries, suggest that income elasticities of demand may be high relative to supply

1. The Economics of Underdevelopment, by (Ed) A.N.Agarwal, pp. 459-466.

elasticities for some of the major strategic materials. Harrison Brown, for example, takes it as a fair assumption that India's industrialisation programme will double her consumption of metals every ten years, an annual rate of increase of 7%. Extrapolating from current production levels, he then estimates that Indian pig iron production will reach 15 million tons by 1975 and 80 million tons by 2000 by which time total cumulative production will be 2 billion tons(sic). By 2000, India's annual consumption of copper will have risen to 1.5 million tons and of tin to 150 thousand tons. He concludes: "This means that India will be forced to import - and will as a result become a competitor for a number of raw materials on the world market. As time goes by, she will become a heavy competitor for (to mention a few shortage) copper and zinc, petroleum and sulpher".[1]

Heavy Industries and Soviet Aid

The heavy engineering industry constitutes the base

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1. Harrison Brown, James Bonner, and John Weir, The Next Hundred Years, New York, 1957, p. 40 quoted in Foreign Aid Theory and Practice in Southern Asia, by Charles Wolf, Jr. p. 279.

of a country's independent industrial development. It is only the production of the machines that make machines, that can free a rapidly growing economy from the burden of costly imports of highly sophisticated equipments for modern industrial enterprises. The mounting bills on capital goods imports compel every country, embarking on the road to industrialisation, to undertake the difficult task of establishing the heavy machine building industries.

One of the most significant developments in the industrial field since India won her freedom is the construction of a heavy engineering complex at Ranchi. Heavy machine building plant (HMBP) is being built with financial and technical aid of the USSR. The heavy machine building plant has been aptly described as "the plant of plants". According to its present designed capacity it is going to produce 80,000 tons of heavy machinery, three fourth of which would go to meet the means of the iron and steel industry. The plant however, is going to have facilities of manufacturing heavy machinery for other major industries like mineral oil, chemical fertilisers cement etc as well as for fabricating machinery of general use such as heavy cranes excavators and grinding equipment etc. Another important feature which may be noted about

HMBP is that it is going to have wide flexibility for the manufacturing of diverse types of heavy machinery for any industry based not only on standard designs and specification of proved performance elsewhere but also to customers' own designs. For this purpose, a fully equipped design bureau, which will be manned by 600 engineers, is being set up at Ranchi.

The HMBP is so far the biggest of the machine-building plants in the whole of South-East Asia, and ranks among the biggest in the world. The fenced area of the plant covers 5,70,000 sq. meters and its total floor area 1,96,044 sq. meters. The huge machines, with which the plant is being equipped, comprise 738 items of machine tools, 116 items of electrically operated overhead cranes, jibs and other handling and hauling equipment. The construction here is in full swing and one can look forward with full confidence to the day when the main shop of the HMBP Heavy Machine Department, medium and small Machine Department, Block of Department of Coke Ovens By product and Handling Equipment and Reduction Gear Department will be working at full capacity, providing the country with 7,700 tons of coke ovens and byproduct equipment; 5,500 tons of blast furnance equipment; 7,000 tons of steel making equipment, 3,150 tons of crushing and

grinding equipment, 6,570 tons of crane equipment, 34,500 tons of rolling mill equipment; 1,080 tons of spare parts for metallurgical industry; 880 tons of heavy mining equipment, 4,950 tons of excavators; 1,360 tons of press forging equipment; 5,500 tons of heavy oil-drilling rigs and 1,810 tons of miscellaneous heavy machine parts and assemblies. It is easy to see that the Ranchi Plant on completion will be in a position to provide in one year the entire equipment and machinery for a giant steel plant like Bhilai with its present capacity of one million tons of steel a year. (This, in the final analysis, means more and more steel plants in the country and complete elimination of dependence on foreign countries in this respect).

The Ranchi Plant is designed and being built on the basis of the latest achievements of Soviet technique and experience in the field of heavy machine-building. It is equipped with tops class machines and equipment supplied by the USSR. According to A.Zarimov, Soviet Chief Engineer at Ranchi Plant, the total weight of machineries and equipment supplied by the Soviet Union is 27,000 tons. The magnitude of the production capacity of the Ranchi Plant will be easily understandable from the fact that if a year's production of the plant is loaded on a train, it will be more than forty kilometers long.

Table No. 1

The Pattern of Production at the Plant can be seen from the following table

Sr.No.	Items	Production in tons
1 -	Coke ovens and Byproducts equipments.	7,700
2 -	Blast Furnace equipment	5,500
3 -	Steel making equipment,	7,000
4 -	Crushing and Grinding equipment	3,150
5 -	Crane equipment	6,570
6 -	Rolling mill	34,500
7 -	Spare parts for metallurgical industry	1,080
8 -	Heavy mining equipment	880
9 -	Excavators	4,950
10 -	Press forging equipment	1,360
11 -	Heavy Oil drilling rigs	5,500
12 -	Misc. Heavy Machine parts and assemblies.	1,810
		80,000

Source: News and Views from the Soviet Union, Vol. XXIV, No.1, p. 17.

The Most Important Department

The Heavy Machine Department, the most important in the plant, will manufacture, large and heavy machines, like, blast furnace, equipment, while the medium and small machine department will manufacture, besides, standard parts for large equipments like oil rigs etc equipments with a maximum sub-assembly weight of 50 tons.

Ranchi is not yet working to its rated capacity a small vital part of its has still to be built. But that was not the worry it faced what it was concerned at was the set back in the planned growth of the industrial economy related to steel production. But it is doing a fine job, one of the biggest job it is performing is supplying equipment to India's beggest steel mill in the making Bokaro. It is taking care of nearly 66% of Bokaro's need.

Most of the items fabricated of HEMP and every item here is gigantic consist of complex equipment or machinery manufactured for the first time in India.

While the bulk capacity of the HEMP is for making machinery and equipment for steel plants, a part of it is

earmarked for other heavy engineering items to serve diverse Indian Industries cement, fertiliser, open cast mining, oil, drilling, crushing grinding and ore-handling, press forging, etc. The latest type of equipment,mainly supplied by the USSR is installed at the HEMP which enables the plant to carry out most diverse technological operations. Constructed with Soviet credit and technical collaboration, the plant is utilising Soviet technical know-how, experts and guidance in the shape as well as in the big design department which Ranchi boasts of as an important feature of its work.

The HEMP has already supplied such massive pieces as a pig-casting machine to the Durgapure steel mill blast furnance complex at Bhilai, EOT cranes to the Hardwar Heavy Electrical Equipments plant, besides excavators to the National Coal Development Corporation. It produced sophisticated items like girth gears of 5.6 metres for the cement plants and complete cable-armouring machinery for the Hindustan Cable Co.,Ltd., It is making the seventh coke-oven battary for Bhilai, which, besides the blast furnace, is an item made for the first time in India. In addition, items like slugladle cars,and coke quenching cars-have been manufactured at the HEMP. Going in for a lot of diversification, the HEMP has produced

such important items has continuous casting machines, roll-turning lathes and well drilling rigs. The last mentioned item is a proud achievement of Indian design engineers. Costing about half of a million rupees one rig can last 15 to 20 years and can drill thousands of well in its life-time.

The production of the plant has been rising from year to year. The output was about 641 tons in 1963-64, it rose to 3,208 in 1964-65 to 10,980 tons in 1965-66, and 14,309 tons in 1966-67. The total turnover in 1967-68 was 14,611 tons and in 1968-69, 23,949 tons.

The Impact of HMEP

The plants of Ranchi and Durgapur had produced till 1968 over 95,000 tons of mechanical goods worth over 32 crore rupees. The most significant thing is that India is already able to meet the requirements of these projects under construction mainly with indigenous output. The machine-building capacities built in the era beginning since 1955 are truly immense with the three projects described here, and the plant at Hardwar which makes heavy equipments for the power industry, attaining their rated

capacities, India will not only be able to fully satisfy some of her own requirements in many types of industrial equipment, including metallurgical, mining, oil-drilling, electric power and others, but also have acquired extensive potentialities for exporting these industrial equipments. The machine-building capacity of India is gradually coming of age. HMEP had social impact also Russian experts and hundreds of Indian engineers having working like friends, about five thousand workers have been earning their daily wages, small towns and schools for children have been developed around the sides.

The Hardwar Heavy Electrical Project

Power generation is also a main factor in economic development and in industrialisation of a country. Our country has been in need of a programme for manufacturing heavy electrical equipment in the country. Consequently a heavy electrical project was set up at Hardwar with economic and technical assistance of the Soviet Union.

Cost Estimates

The total cost of the projects, as worked out in the Detailed Project Report is Rs.74.03 crores. This however, is only provisional and would vary in some details, depending on the conditions prevailing at the site. At the full rated capacity, the Heavy Electrical Equipment Plant will emply approximately 8,000 persons, including 1,400 engineers and technicians.

In addition to the engineering personnel for specialised jobs, who have to be trained in the USSR, the plant will require trained workers for other categories of work. For this purpose, in conformity with production programme, a training programme has been chalked out. A training school with its ancillary workshops has been set in the project area. This school provides training for 400 apprentices in each shift. Arrangements for two shifts of 400 apprentices in each shifts have been made and there is a provision to run the school in three shifts also, to ensure a regular flow of trained personnel for handling various complicated jobs.

In course of time, the training school of this project will become an important technological centre for training personnel for the further expansion of the heavy electrical industry in the country. A number of ancillary industries are expected to grow around the heavy electrical project.

In short, the Soviet aided Heavy Electrical Equipment Plant (HEEP) at Ranipur, near Hardwar, is the biggest enterprise of its kind in the whole of South-East Asia. It is designed to produce annually 1.5 million KW of turbo-sets, 1.2 million KW of hydro-sets and 515,000 KW of electrical motors. Being built at a cost of Rs.86 crores the HEEP at its designed capacity will produce equipment worth Rs.62 crores annually. The impact of this plant can be gauged from the above figures itself. The Hardwar Plant will provide nearly 2.7 million KW. Capacity power generating equipments annually. The growth of heavy electrical industry is directly related to the power generation programme. But its existence also helps to promote heavy engineering and precision industries.

The heavy and medium electrical machines being produced at Hardwar, for example, are being sent to Heavy

Machines Building Plant, Ranchi to the Coal Mining Machinery Plant, Durgapur, to the Boiler Plant at Ranchi and to a number of other projects.

The production of heavy electrical equipment, and the experience of such big projects as Hardwar helps to increase the tempo of industrialisation, making India self-reliant, economically and industrially.

Hardwar was so far a famous place of pilgrimage but, thanks to the establishment of the Heavy Electrical Project, it occupies today an important place on the industrial map of the country. In the days to come, it is destined to become an industrial centre of considerable dimensions. The equipment produced at Hardwar will, by increasing, the power generating capacity of the country, quicken the pace of industrialisation in the country.

According to the Chairman of the Bharat Heavy Electricals Limited., "At Hardwar Unit the production increased from Rs.9.44 crores in 1969-70 to Rs.10.79 crores in 1970-71. In the last two years, the Units own contribution in the total value of production has nearly doubled".[1]

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1. The Hindustan Times, dated 24.9.1971.

Machines for Coal Mining

The importance of coal for a nation's progress is beyond question. As a source of fuel it continues to hold its own even in the atomic age. Such major industries like the railways, power, paper, cement and textiles consume millions of tons of coal every year. Again coking coal or metallurgical coal is a vital raw material for the making of steel which is universally recognised as the index of a nation's economic advance. Coal and its by-products are essential raw materials for petroleum, chemical, fertilizer, pharmaceutical, and a host of other industries, big and small.

India is fortunately endowed with abundant reserves of this valuable minerals. The reserves of coal lying at depths of upto 608 meters are estimated at nearly 120,000 million tons, including over 2,000 million tons of cooking coal.

The annual production of coal in India was only 32.5 million tons in 1955 at the end of the First Five Year Plan. It rose to 54 million tons in 1961 at the end of the Second Five Year Plan. The Third Plan target is 97 million tons, and it is proposed to bring the coal output

to 125 million tons by 1970-71 at the end of the Fourth Five Year Plan. This proposal, contained in the memorandum of the Fourth Plan, has been endorsed by the Coal Advisory Council of the Government of India.

However, the coal mining industry was not in favourable position, till 1955 the equipment worth 36 lacks of rupees were imported but, it did not include machines for the mechanisation of the main coal mining operation. It was in this situation that the Government accepted the recommendations of the Soviet team and a coal mining machinery project was set up at Durgapur. The Durgapur Plant will have an annual capacity of 45,000 tons of machinery to be used for large-scale mechanisation of mines. It will play a significant role in enabling India to achieve the long-term target of 380 million tons of coal by 1980, visualised by the perspective division of the Planning Commission.

Spread over an area of 480,000 sq. meters the plant will consist of a number of units. The Durgapur Project will enable Indian coal-mining establishment to go in for large-scale mechanisation, at the same time, help the country to reduce considerably the imports of coal machinery. The capital outlay on it will come to about

Rs. 35 crores, excluding Rs.15 crores on civil works. The value of the products of the plant at its full rated capacity has been estimated to be Rs.25 crores according to prices prevailing, in 1959. In view of the rising trend in prices, the actual value is bound to be higher, and will be according to the Report of the Estimates Committee of the Parliament for 1963-64 Rs. 30 crores.

New coal mining projects with a total capacity of 6.5 million tons of coking coal a year, have yet to come up at Ramgarh, Pundi, Toping and Keedlya in Bihar. These projects are already included in the list of schemes for which the USSR provided a credit of Rs.250 crores to India in December 1964.

Kobra is one of these new coal mining areas where Soviet economic and technical assistance has been instrumental in developing two mechanised coal mines and a mechanised quarry. Kobra's coal is helping Madhya Pradesh in power generation, it is going to railways as well as to steel plants. The power produced with this coal is going to Bhilai, it is also to be used by the Aluminium plant which is to come in the area with Hungarian and Soviet collaboration, and as announced recently,

it will be used by the coal based fertiliser project to be set up here. The full potentialities of Kohra, however, still remain unutilised but the process of industrialisation already started in bound to bring more and more prosperity to the area.

These enterprises will remove the gaps that at present exist in India's heavy machine-building capacities built up so far. Taken together, they will take India a long way towards self-sufficiency in the engineering sphere.

At the engineering enterprises described above, inter-connected and interlinked as they all are, are figuratively speaking the offsprings of Indo-Soviet co-operation which, by enabling India to put her state sector on sound foundations, is making its possible for her to advance on the road of independent economic development. Employment for thousands, opportunities to master modern technological and scientific knowledge, continuous expansion of industrialisation, reduction of imports and increasing self-sufficiency - these are the prospects that loom large before India and her people today, thanks to unselfish Soviet assistance, particularly in the sphere of building the engineering and technological base of the national economy.

Some Aspects of Steel Plants of Bhilai and Bokaro

Steel is the hard core of a nation's economy. It is the rock foundation of a country's industrial development. Construction and capital formation on a large scale are unimaginable without the development of the steel industry. Understandably, therefore, a country's economic progress is traditionally measured by the amount of steel it produces. The steel output of a country is rightly regarded as the most significant index to economic strength and defence potential.

The agreement on collaboration in building the Bhilai Steel Plant was signed by the Governments of the Soviet Union and India on February 2, 1955.

The Bhilai agreement was, therefore, no ordinary agreement, its significance went far beyond the construction of a steel mill. It will not be an exaggeration to say that by ushering in the Soviet Union's co-operation in the major industrial programmes of the underdeveloped countries, it added a new dimention to international economic relations. The vital role that the Soviet Union is playing to-day in the industrial development of these countries is recognised on all hands. About 500 industrial and other projects in more than twenty Afro-Asian countries are being built with Soviet co-operation. These

projects veritably changing the face of these countries. And it is decidedly Bhilai that poineered this development.

The terms of Soviet offer for the Bhilai Plant were long-term credits on just 2½% interest without any share in ownership, repayment in twelve annual instalments after the completion of the plant and rupee payment without involving foreign exchange. In fact, the Soviet offer changed the whole situation in which the negotiations for steel plants in India were being conducted with foreign firms. It made it transparently clear that no body could any longer count on monopoly of capital goods and technical know-how to force onerous terms on the developing nations, that the policy of economic dictate could no longer be continued.

The Soviet offer for Bhilai,in a very real sense,paved the way for successful negotiations for the two other plants, Rourkela and Durgapur. It is rather doubtful whether it could have been possible for this country to have these two plants on the terms it finally managed to secure without the Bhilai agreement. Bhilai thus is a very apt example of the indirect benefits that Soviet assistance bring by strengthening the bargaining position of the country.

The Soviet credit for Bhilai was very much appreciated in India for several reasons. First, it was made available to India at a time when other countries were not prepared to help the developing countries in building their basic industries without their own participations; secondly, it envisaged a low interest rate of 2½% per annum, while the Western firms were demanding over six per cent per annum interest on credits as also the right to share profits in future, thirdly, the Soviet Union gave an option to India to pay back the principal and interest thereon in rupees which were to be utilised by the Soviet Government for purchasing Indian goods; lastly, the payment were to start only one year after the completion of deliveries of equipment, or in other words by the time the plant was in a position to give return on the interested capital.

The announcement of the first Soviet credit to India set a new pattern of economic relations between a developed and a developing economy. No wonder the late Prime Minister of India, Mr. Jawaharlal Nehru later described the Bhilai Steel Plant, which was built with the credit as "the symbol of fruitful Indo-Soviet co-operation in the economic field".

Engineers in Bhilai speak in the most glowing terms about their plant.

The coke oven battery is the tallest in India, being 98 feet higher than even the Kutab Minar.

The open hearth furnaces (each 250 tons capacity) are the biggest in the country. The Bhilai plant is the first in India to produce self and super fluxing quality sinter and to utilise it successfully at the blast furnaces. The above has contributed considerably in improving the consumption to 767 kilograms(any) per tons of hot metal which is the lowest in India.

Bhilai is the only producer of 105 lb rails in India. Our blast furnaces are working at a very high level of productivity with lower coke rate.

Bhilai is the first plant in India to break away from the classical operational methods of other furnaces operating in India. One deviation made here was to aim at the manufacture of basic & pig iron. Another deviation from the usual practice is the running of the furnace on high top pressure. Bhilai has got the distinction of running all the three furnaces continuously of high top pressure.

Table 2

Record of Production for a day

Furnace	No. 1	1611 tons	on 16.2.1964
Furnace	No. 2	1663 tons	on 12.9.1964
Furnace	No. 3	1573 tons	on 22.8.1964

The Bhilai plant is designed to produce, in the first stage, one million tons of ingot steel and about 300,000 tons of pig iron. The one million tons of ingot steel are to be processed into the following marketable products:

a)	Rails	120,000 tons
b)	Heavy structurals	274,000 tons
c)	Sleeper-bars and crossing sleepers	90,000 tons
d)	Rounds and squares	121,000 tons
e)	Flats	15,000 tons
f)	Billets for sale	150,000 tons
	Total	770,000 tons

An integrated steel plant consists of four main sections:

Coke-ovens	- to convert coal into coke;
Blast furnace	- to smelt iron ore into iron;
Steel melting shop	- to convert pig iron into steel ingots;
Rolling mills	- to role steel into saleable products.

Comparative Impact of the Rourkela, Bhilai and Durgapur Projects

Initial pointers towards evaluating relative performance of the three mills can be provided, although the complexities are very great.

Comparative figures for gross and net profits from 1962-64 are shown in the following tables:

Table 1

Gross profit* of public sector projects

(in Rs. millions)

Year	Bhilai	Durgapur	Rourkela
1962-63	54.69	4.73	5.43
1963-64	114.11	91.08	60.00

* After interest payment but before depreciation

Table 4

Net Profits of Public sector steel projects

(in Rs millions)

Year	Bhilai	Durgapur	Rourkela
1962-63*	- 44.89	- 84.46	-107.20
1963-64	- 14.65	- 1.89	- 63.17

* Allows for adjustment of steel retention prices.

Bhilai performance is impressive. The following table compares performances as a percentage of rated capacity:

Table5

Percentage achievement on rated capacity of public sector Steel projects

Articles	Bhilai		Durgapur		Rourkela	
	1963	1964	1963	1964	1963	1964
Coke	92	98	107	101	92	83
Hotmetal	103	114	101	104	92	90
Ingot-steel	108	113	91	98	95	94
Saleable steel	99	103	86	88	74	92

Source: The Politics of foreign aid in India, P.J. Eldridge, pp. 134-5.

The Social Impact of Bhilai Plant

The steel plant at Bhilai provides educational facilities for employees' children. There are 20,849 children at 38 schools at Bhilai. 500 pre-primary children attend nursery schools run by development

department. About 1,000 children attend nursey school run by Bhilai mahila Samaj. Education at Bhilai is free for employees' children upto the age of 14, free lunches and uniform are given to children of non executive class. There are 50 scholarships of the value of one hundred per month for science,medical and eingineering subjects and R.50 per month for arts subjects. There are classes for illiterate workers. At a higher level nearly 4,400 employees receive technical and other training every year.

At the Bhilai township nearly 20 thousand employees and their families live in beautiful modern quarters. Each house has modern amenities. There are parks,gardens and play grounds in almost all sectors of the town. In fact Bhilai which 50 years ago was dirty village is today one of the most modern towns in India. Medical care is also provided. There are health centre and first aid post-maternity ward, and child health centre in the township of Bhilai.

In Bhilai there are co-operative farms which produce vegetables, eggs and other products. 21 farms are run by co-operative agricultural society. There are also co-operative credit society for fisheries, cycles,stores and printing press. There is a community development department, which runs clubs libraries and recreation programmes.

There are four cinemas, a large modern theatre and seven clubs in Bhilai. Bhilai has one of India's top hockey team.

In short, Bhilai has been promoting concept of national integration in its broadest sense, through providing community services, developing and assisting democratic institutions and generally ensuring that the company as a whole and its employees act on the ideals of social justice without discrimination; and providing know-how and assistance, and encouraging talent and growth among members of the communities through the establishment of co-operative institutions.

Economic Impact of Bhilai Steel Plant

There is a large variety of ways in which Bhilai Steel Plant has contributed to the country's economy.

The employment it has generated, the foreign exchange it has saved by producing steel which would otherwise have had to be imported, and the foreign exchange it has earned exporting steel are all important direct contribution to the country.

The figures in these respects are impressive Bhilai Steel Plant (Hindustan Steel) employs 1,20,000 men at all levels. Its foreign exchange earnings were Rs.40.6 crores in 1968-69. In direct financial terms the three steel plants of Hindustan Steel contributed Rs.208 crores to the excise revenue of the state during the nine-years period 1960-61 to 1968-69 (both years inclusive) and paid in addition Rs.143.4 crores to the central government as interest on loans during the same period.[4] These contributions to the national economy which are direct in nature are substantial. They are even more substantial if the indirect effects of such contributions are taken into account. The income generated in the form of salaries and wages to the employees, to the state from excise and interest to the state have a spiraling effect which creates further economic activities. A substantial portion of the national economy is thus sustained directly or indirectly by the investment made in Bhilai Steel Plant, whose effect has been generally favourable. Bhilai Steel Plant in recent years, has helped the country to attain near-self-sufficiency in steel, provided employment opportunities to vast numbers of our talented youngmen, and also contributed to the rapid growth of metallurgical know-how. It has enabled us to meet vital defence requirements and played a significant role in promoting industrial growth and export earnings.

The importance of Bhilai for Indian economy can hardly be overemphasised. Bhilai has been the main supplier of rails to the Indian railways. About 16 crores rupees worth of rails are being supplied to the railways annually. Bhilai has also been participating in export programmes and since it commenced production to total earnings of foreign exchange from export orders(till the middle of 1965) amounted to R.4.22 crores, one may say that foreign exchange to the extent of R.2,307 million has been saved from the time the Bhilai Steel Plant went into production, as otherwise the country would have had to import steel including rails for Indian railways.

The total despatches from Bhilai upto November 20, 1965 including exports to foreign countries are agiven below:

Tar	64,141	tons
Sulphuric Acid	3,937	"
Ammonium sulphate	94,145	"
Benzal products	36,404	"
Tar products	109,193	"
Pig iron	2993,609	"
Blooms	51,390	"
Billets	1399,838	"
Rails	1005,981	"
Heavy structurals	515,840	"
Light structurals	1131,853	"

The plant is a paying enterprise, bringing profits. It has developed lots of new products particularly section steel, electrode steel, copper cutting steel and other kinds of steel.

After attaining 2.5 million tons capacity, Bhilai will be the big est steel plant not only in India but in this part of Asia. Its capacity will be about 25% of the total output of steel planned for the end of Third Five Year Plan. Bhilai Nagar with its population of nearly 200,000 has changed the entire face of this part of Madhya Pradesh. The plant has provided employment, directly or indirectly, to two hundreds of thousands. It has the same time, served to throw open the area for various subsidiary and ancillary industries in the neighbourhood. The Madhya Pradesh Government has been taking steps to develop the hinterland of Bhilai into an industrial area. A master plan for the Bhilai region, extending from Raipur, 32 Km east of Bhilai to Rajnandgaon, 32 Km to the west is under preparation.[1]

An invaluable significance of Bhilai for the Indian economy lies in the fact that it acted as the golden key to help open a door which was being kept closed and

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1. Bhilai Today, Soviet Review, Vol.III,No.11,February 8, 1966, pp. 29-30.

locked. The economic co-operation with the USSR which is represented was not only a form of direct aid but also indirect aid in that it strengthened the position of the recipient countries in its negotiations with other countries who insisted on onerous terms before signing aid agreements.

The agreement of February 2,1955 opened theway for greater Indo-Soviet economic collaboration. In the Second and the Third Five Year Plan attempts were made to lay the foundations of a growing industrial economy. For this it was decided to establish and enlarge the capacities of such key industries as oil,coal mining, power, heavy machine building, steel, power-engineering, pharmaceuticals etc. The several credits which the Soviet Union granted to India after February 2,1955, were aimed at building these very important branches of industries.

B O K A R O

Although Bokaro was delayed, it still remained in the limelight. A number of countries showed interest in it, but final arrangement for collaboration could not be worked out. Ultimately on May 1,1964, it became known through a statement of Mr. C.Subramaniam that the USSR was

ready to assist India in the first stage of Bokaro.

An appropriate agreement for Soviet-credit valued at 4.158 crores (190 million roubles) was signed between the two governments on January 25,1965. The project report for the Bokaro plant, prepared and submitted by the Soviet side, was accepted by the Government of India in March 1966. After preliminary site leveling job, civil engineering work was started in October 1967, which is now under progress. On April 6,1968, it was officially inaugurated by the Prime Minister.

Bokaro is planned as a big project it is designed to have a capacity of upto 5.5 million in three stages. The first stage is already under construction. At its second stage Bokaro will have a capacity of four million tons of steel ingots. During the last stage it will be expanded to 5.5 million tons. In the layout of the Bokaro plant space has already been provided for further expansion.

When Bokaro will reach its first stage capacity, it will be producing 1.36 million tons of flat products, of which there is a serious shortage in the country, and the demand for which is constantly growing. After reaching its second stage Bokaro can produce 3.22 million tons of flat products and it may be in a position to export a

part of its production.

The Soviet contribution in the development of steel industry is not limited only to economic aid, very valuable as it is while building Bhilai and Bokaro the Soviet technicians have help ed and are helping to train a large number of workers for the steel industry. In Bhilai alone their number was 900. Hundreds of engineers will receive practical training during the construction of the Bokaro Plant.[1]

Bokaro Steel City

Bokaro the giant public sector steel mill under construction near the ancient village of Chas in Hazaribagh district at last it will see the light of day.

According to the revised schedule the first blast furnace was to be commissioned by March 1971. The steel melting shops and the remaining two blast furnaces by December 1971, the hot rolling mills by March 1972 and the cold rolling mills by June 1972.

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1. Soviet Review, 15th Years of Soviet Indian Economic Cooperation, Vol. VII, January 31,1970,p.38.

The Union Government has decided to raise the capacity of the Bokaro Steel Plant "in intermediate stage to 2.5 million tons within a year of the completion of the first stage in 1973".

In a prepared address to the sixth annual meeting of the Indian Engineering Association (Northern Region), the Steel Minister, Mr. Mohan Kumaramangalam said a crash programme has been launched to instal the fifth converter and other ancilliary facilities for the erection of the plant for the intermediate stage by March 1974.

Mr. Kumaramangalam said "if it is found necessary we shall certainly consider further expansion of the existing plants". He hoped that the Planning Commission and the Finance Ministry would extend full support to any realistic programme for meeting the steel requirements of the country.

The Minister said the Government had suggested to the managements of all the steel plants to prepare a three years rolling programme for maintenance and procurement of raw materials, components and spare parts. This would help not only in the timely procurement of raw

materials but also in faster import substitution.[1]

Bokaro Plant Unit Ready

The first unit of the main Bokaro Steel Plant comprising two big iron casting machines was successfully tested in trial run on 16th August 1970 prior to commissioning the first blast furnace next year.

The blast furnace is being erected. Both the casting machines, each having two strands with the total capacity of 3,500 tons of pig iron per day, have been supplied by the Heavy Engineering Corporation and erected by the Bokaro Steel Limited.

"The structural profile of the first blast furnace complex is complete. The refractory lining of the furnace and its stoves are in an advanced stage of completion. Erection of mechanical and electrical equipment is inprogress. Arrangements for supplying water, power and

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1. Hindustan Times, dated 29.7.1971.

steam for the operation of the plant have been nearly completed."[1]

Both Bhilai and Bokaro SteelPlants are milestone in the development of steel industry of India. Of course, these two plants have not yet shown their full results, but time will come when their value will be realised. The huge amount invested in these plants will bring appreciable yields. Even at present the economic impact of Soviet aided steel plants is enormous. The employment they have generated, the foreign exchange they have saved by producing steel which would otherwise have had to be imported, and the foreign exchange they have earned by exporting steel are all important direct contributions to the country.

Power Generation and Soviet Aid

In a developing country like India power is an important requirement for industrial progress. Power generation is rightly regarded as a key factor in

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1. Hindustan Times, August 16, 1971.

economic growth. A modern industry cannot be conceived of without a regular and adequate supply of power. No wonder, therefore, that the per capita availability of power in a country is considered more or less a yardstick of its economic development. The Planning Commission of India emphasised for the provision of power generation in the First Five Year Plan. The total provision for expenditure on power projects under the First Five Year Plan, including the proportionate cost (chargeable to power) of multipurpose projects, amounted to Rs.260 crores. Despite difficulties of importing machinery and equipment from outside and of procurement of building materials like steel, cement etc., the total capacity by the end of the plan increased to 3.4 million Kw.

It was during the second half of the last decade that active and fruitful co-operation began between India and the USSR. Following the agreement on the construction of the Bhilai Steel Plant with Soviet economic and technical assistance, the way was opened for the establishment of Soviet aided projects in other spheres of economy. Under the Second Plan Soviet credit of November 9, 1957 for industrial projects, the construction

of a thermal power station at Neyveli was also agreed upon. In the following years, more power generating s schemes were taken up, and at present they are playing a significant role in the power development plans of the country.

For this purpose the Soviet Union is helping India to set up both thermal and hydro-power stations which, will utilise hydro-power, coal and lignite resources of the country.

The following power stations are being built with the economic and technical co-operation of the USSR in different part of the country.

Name of the power station	Capacity in Kw
1. Neyveli Thermal Power Station(Madras)	400000
2. Kahra Thermal Power Station(Madhya Pradesh)	200,000
3. Obra Thermal Power Station(Uttar Pradesh)	250,000
4. Patratu Thermal Power Station(Bihar)	400,000
5. Nardaganj Thermal Power Station(U.P.)	100,000
6. Bhakhara(right bank) Hydro-Power Station (Punjab)	600,000
7. Mettur Hydro-Power Stat-ion(Madras)	200,000
8. Balimela Hydro-Power Station(Orissa)	360,000
9. Hirakund Hydro-Power Station(Orissa)	25,000
Total Capacity	2,535,000

1. Ten Years of Soviet-Indian Economic Co-operation, February 2,1965, Vol. XXIV, No.8.

Neyveli Thermal Power Station

This station was officially inaugurated in August 1962 by the President Dr. Radhakrishnan. This thermal power station is of great importance for the economic advance of southern India. It will provide electricity for the entire industrial complex under construction in the area of Neyveli as well as for the power grid in Madras state.

Speaking on the occasion of its inauguration on August 5, 1964, about its economic impact on the region Chairman of the Neyveli Lignite Corporation Mr. K.N. Subbraman said: "Neyveli's virtue lies-in proving the utility of base fuel on many fronts an area so far removed from coal for better purposes and nearer its origine, saving hard pressed transport. Neyveli is the first practical step in the discriminatory use of raw materials in a total plan for raw material exploitation and conservation. To the Tamil Nadu state, it has aided a stable 250 MW to the seasonal 650 MW hydel power. About 70,000 tons of nitrogen is the content of the fertiliser production in Neyveli, that holds the promise of 7 lakhs

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1. News and Views from the Soviet Union, Vol. XXIV, No.8, pp. 54-55.

tons more of foodgrains. About 380,000 tons of carbonised briquettes, used as domestic fuel will save nearly 1.5 million tons of firewood annually.

Neyveli is reaching out for new horizons and new achievements. The aggregate of the effort of all these thousands of workers would add up to a big break through in India's power generation plans. Neyveli is an investment in India's future.

Bhakra(Right Bank) Hydro-Power Station

Bhakra(right bank) Hydro-Power Station was also built with the co-operation of the USSR. The setting up of this project was officially provided for in the Indo-Soviet credit Agreement on February 21,1961, in accordance with which the Soviet Government granted to the Indian Government a credit of R.59.53 crores for the setting up of a number of industrial projects.

The equipment for the power station was supplied by the USSR. The power station has been planned unit wise, each of the five units consist of a turbine, a generator and a power transformer. The turbines are of radial axial type, vertical 127 MW, 187.5 RPM at design head of 122 M.

Among the hydro-power stations, the biggest is at the right bank of the Sutlej. The Bhakra Hydro-power scheme would thus become not only the biggest in India provided with the largest generating capacity units of 120,000 KW each, but also the biggest of its kind in the whole of south-east Asia when the five 120 KW units are installed.

No single project has done so much and in such a short time for a vast region of our country as Bhakra. The power generated at Bhakra has dispelled darkness from thousands of villages. All the villages in Haryana have been electrified in the Panjab also runs into thousands. Nearly 90,000 tube-w lls in the Panjab and 86,000 in Haryana are operated by electric power. The Sutlej water stored in Govind Sagar not only runs the turbines of the two power stations at Bhakra, it also irrigated vast tracts of agricultural land in the Panjab Haryana and Rajasthan. The impact of Bhakra on the agrarian life in the Panjab and Haryana can be seen from the higher farms output in the two states-estigated to be Rs.200 crores. Of course, some other factors might have contributed to the higher output.

Without Bhakra's power the impressive growth of industry in Panjab, Haryana and Delhi would have been very difficult. Thanks to the availability of cheap power from Bhakra mainly new towns in Haryana and the Panjab have developed an industrial character. As a result of all these developments, the per capita consumption of power in the two states as compared with the all-India figure of 68 units has gone up to 100 in case of Haryana and 163 in case of the Panjab.

The Bhakra Right Bank station always keeps some reserves which take care of the demand in the area. Although the construction of the two power stations, utilising equipment from different sources, involved the use of different technical-practices, both power houses have been working very satisfactorily. For example, it is now exactly five years since the first unit of the Right Bank Power station was commissioned in May 1966, but this has been working trouble free. The same can be said about the other four units.

In order to meet the growing power demand in the region a scheme has been taken up to link the Beas with the Sutlej. It is expected that Beas water willbe diverted into Govind Sagar lake by the end of 1975. After that it will become a multi-river project and there will be no more any spells of water shortage in Govind

Sagar due to which power generating is hampered at Bhakra during dry months. Moreover, with commissioning of the Guru Nanak Thermal Power Station at Bhatinda and the Badarpur Thermal Power Station near Delhi in the near future the power supply position will further improve. In this situation thermal power stations will take over the load of Bhakra in dry periods and pass on their load to Bhakra when water is available in a sufficient quantity. Thus Bhakra will continue to play an important role in the northern region as a major supplier of cheap power, boosting up industry and agriculture in Panjab, Haryana and Delhi.

Hardnaganj Thermal Plan

Electrification is the watchword of progress and prosperity in our days. The credit for the progress that the western region of U.P. has achieved must go, among other factors, to the increased output of power. Today a single thermal power complex in western U.P. has more capacity than the available in the entire province of 1947. Situated at Hardnaganj in the Aligarh district, this complex has a total installed capacity of 220 MW,

for highseismicity, loose ground and tropical conditions of the Harduaganj area. Payment for the equipment will be made in Indian rupees.

According to the agreement, Indian specialists will actively participate in the designing of the Harduaganj power station and many important items of equipment and materials will be manufactured by Indian industry.

The power station was constructed within a short period of time. The first unit was commissioned during the Third Five Year Plan, i.e. by 1966. According to Mr. J.C. Mittal, Chief Engineer, operations and Maintenance the Harduaganj(B) power station has cost the U.P. Electricity Board nearly Rs.20 crores, out of which nearly Rs.6 crores is the cost of Soviet equipment and know-how (minus customs and other duties). The monthly output of the station, at 50 million units of power calculated at the rate of 10 paise per unit, comes to nearly Rs.50 lakhs. There is also a regulated rate schedule for industrial consumers. Thus the monthly output of 50 million units of power, sold at different rates, yields sufficient revenue to fully meet the cost of the power station in a few years.

Government Plan to Raise Power Generating Capacity

There will be a shortfall of 1.8 million KW of power in the achievement of the Fourth Plan target of 23 million KW by the end of 1973-74 according to an official review.[1]

The review of the progress of work on the various power projects sanctioned for commissioning during the plan period says the short fall is due to slippages in the delivery dates of equipment in respect of some projects and delay in progress of civil works in the case of others.[2]

With the anticipated load demand of 18 million KW by 1973-74 the total short-fall in power generating capacity at the end of fourth plan is expected to be over 4 million KW.

To meet the increasing demand for power, the Union Irrigation and Power Ministry has drawn up power (generating) plan for the decade 1971-81 envisaging a total installed generating capacity of 52 million KW in

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1. Hindustan Times, September 20,1971.
2. Ibid.

the country. The location of the various power projects have also been tentatively identified in the Plan.

The Ministry is considering further projection of this plan to give prospective of 15 - 20 years.

One of the objectives of the Fourth Plan is to inter-link the various power systems in the country for an ultimate formation of all India grid.

The Ministry has initiated several steps to bridge the widening gap in the demand for and supply of position of power. These include hastening the construction of sanctioned inter-state and inter-regional link transmission lines to enable transfer of power from surplus areas to neighbouring deficit areas.

Total investment on power generation in the country at the close of 1970-71 is of the order of Rs.4,588 crores. This industry is one of the foremost public utility undertakings from point of view of investment.

Under the Fourth Plan, the outlay on power in the public sector is Rs.2,488 crores. In the central sector the outlay on continuing generation schemes is Rs.210,10 crores including Rs.120 crores on nuclear power generation.

The per capita power consumption in the country was only 83 KWH in 1969-70. This is considered to be very low compared to the per capita consumption of even some of the smaller countries in West Asia which have recorded higher figures ranging from 150 to 2,005 KWH.[1]

In the field of power generation Soviet assistance has helped us in installing 2 million KW capacity of the 15 million KW which we have today. In the Fourth Plan period another 1 million KW will be added with Soviet assistance. Therefore, in India's struggle for power generation, Soviet assistance has played a very large part.[2]

Soviet Aid in Oil Industry

After independence of the country it was realised that for economic development the organisation of oil industry was essential. The Soviet Indian Co-operation in this field has been making the economic growth of India

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1. The Hindustan Times, September 20,1971.
2. Cf. Soviet Review, Vol. VII, January 31,1970.

possible. With the help of Soviet experts, oil explorations have been carried on all over India and even into sea. The technological problem of drilling for oil have been solved with Soviet aid. The setting up of refinery to obtain different types of chemical is being achieved. In all such activities the Soviet aid has been playing a very important part. The training of Indian scientists in geophysical methods of oil prospecting has been of great advantage.

In 1955, the USSR sent a team consisting of eminent petroleum technologists to India. They visited the various sedimentary basins of India, discussed with Indian geologists and engineers, and prepared a project report defining the tasks of Indian organisation for petroleum exploration, and providing it with equipment and personnel to carry out these tasks. The oil and natural gas commission is the direct result of the recommendations of this mission. It was started in 1956 with a complement of about 20 persons. In 1965, 14,000 employees including geologists, geophysists, drillers, production engineers and other personnel were working under the Commission, and it now confidentially carries out exploration work in all the sedimentary basins of India and adjoining areas.

The Soviet experts drew up a programme of oil exploration involving an outlay of Rs.30 crores, for the Second Five Year Plan period (1956-1961) and marked out a number of areas for immediate drilling. Considering the complex nature of the venture, the investment suggested was small, an annual expenditure of Rs.6 crores only - a very modest sum indeed considering that today the annual wage bill alone of the ONGC comes to Rs.5 crores, and the total expenditures envisaged in the tentative 10 years (1968-69 to 1978-79) programme of the ONGC is of the order of Rs.1200 crores.[1]

Oil Search

With Russian assistance, oil and gas deposits were discovered in India in a comparatively short space of time. The initial prospecting drilling jobs began, as suggested by the Soviet specialists, in three states - Panjab, Gujrat (in the areas of the Gulf of Cambay) and Assam. The results were not long incoming: a gas deposit was found in May 1958 near the village of Jawalamukhi in the Panjab. A few months later, oil was discovered on

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1. Soviet Review, Vol. VII, January 31,1970.

the coats of the Gulf of Cambay in the area of the village of Ramoj.

In May 1960 a well was sunk in Ankleshwar near Cambay, by Indian and Soviet experts. A new oil field was found in Assam.

In the Second Five Year Plan with the help of the USSR, India laid a foundation for further development of oil industry. The finding of oil and gas deposits in the Cambay basin and of the oil field in Nadrasagar can boldly be characterised as the birth of India's national oil industry. Commercial extraction of oil has begun to develop in these areas in last few years.

Though there was sufficient advancement in the oil production yet the demand of crude oil was also increasing and it was difficult to get self-sufficiency upto the Third Five Year Plan period. The following table shows the gap between India's demand for crude oil and the production of the oil.

Table 6

Indian production of crude oil in relation to demand (million tons).

Year	Production	Demand
1960-61	0.5	6.0
1965	3.0	9.5 10.0
1966	5.0	12.0 12.5
1970-71(estimated)	10.0	24.5*

* Source: The Politics of Foreign Aid in India P.J.Eldridge,p. 120.

By the end of December 1964, the number of wells completed and the meterage drilled were as follows:

Table 7

The Number of wells completed and meterage drilled

States	No.of wells completed	Meterage drilled (in thousand meters)
Gujrat	258	412.6
Assam	14	60.7
Panjab	5	17.2
Ganga Valley	2	6.1
Madras	1	1.8
	228	498.4

The Commission has entered into an agreement with the USSR for the use of an offshore seismic ship and work has been carried on and is being done on the coromondal coats and in the Kutch area.

The performance in exploratory drilling can be seen from the fact that as on September 30,1964 the drilling of 266 wells had been completed and the total meterage drilled was 473,000. The results achieved are among the best in the world. Out of these 266 wells, as many as 149 were found to be oil-bearing, 29 gas bearing and only 36 dry. The testing in 52 wells and yet to be completed. Excluding the latter, the percentage of success comes to about 75. Few places in the world could claim to have achieved such a high success ratio.

The amount of oil and of gas reserve of commercial categories (A and B) turns out to be on an average 150 tons per meter of exploratory drilling, a high average indeed indicating a high scientific level of various types of geological, geophysical and research work that has been carried out. In recent year the achievement in oil industry is not small one.

The ONGC produced three million tons of crude (1968-69) from its oil fields and hopes to produce nearly four million in the current year. The bulk of this oil is being produced at Ankleshwar, which remains the principal oil field in India. Production was started here in September 1961(in a record period of 14 months after oil was struck here in Test well No.1, subsequently named by Jawaharlal Nehru as "Vashudhara" Fountain of Prosperity) with just a hundred tons of crude oil per day. The daily output of oil has now risen to 8,300 tons which supplemented by additional supplies from other fields, to the time of another thousand tons daily, is sufficient to sustain the present optimum refining capacity of the Gujarat Refinary, which was also built with Soviet aid. It has possible, thanks to Soviet co-operation, to refine public sector oil in public sector refineries.[1]

Apart from oil Ankleshwar produces daily about eight lakh cubic meters of associate gas, which is supplied to the Uttaran Power Station, the Gujarat Fertiliser Corporation and certain industries in Baroda. Besides, five lakh meters of free gas is being produced daily at Cambay which has established itself as a gas field. The free Cambay gas is being supplied alone a 25 Km

1. Soviet Review, Vol. VII, January 3,1970.

trunk piple line to the Dhuraran Power Works. The Cambay field also produces condensate of gas a cubic meter of condensate of 58 degree AP 1 gravity is obtained from every 6,000 to 8,000 cubic meteres of gas which is supplied by road tankers to the Gujarat refinery and also to the private firm.

R e f i n e r i e s

There are about five refineries in public sector in India. These are at Gauhati(Assam), Barauni(Bihar), Kayali(Gujarat), Cochin (Kerala), and Madras. The estimated capacity of these refineries when they are fully operational will be 11.75 million tons. The Soviet Union provided Rs. 11.9 crores of foreign exchange credit for the Barauni refinery, for which the agreement was signed in September 1959, and Rs. 7.75 million credit for the Kayali refinery, for which J.Nehru laid the foundation stone on May 10,1963[1].

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1. Hindu Madras, 11 May 1963.

The Kayali (Jawahar Nagar) refinery is designed for the maximum production middle distillates, like Kerosene and diesel oil, for which the demand is the greatest in India. Other finished prudnets of the refinery will be furnace oil, aviation turbine fuel, solvents of various grades and liqified petroleum annually Rs.11.16 crores in foreign exchange.[1][2] The refinery fed by crude from Ankashwar and other field in the state, is running at three million tons capacity per year. As a part of this refinery, a Udex plant has been commissioned to produce benzene and toulene.

A noteable feature of the construction of the refinery is that a considerable part of the designing and projecting work has been carried out by Indian design engineers themselves, in consultation with Soviet specialists, at the Central Design Institute, Baroda.

Barauni Refinery

The Barauni Refinery built with the economic and technical co-operation of the Soviet Union has already

1. Ten Years of Soviet-Indian Economic Co-operation, Feb.2,1965, Vol.XXIV, No.8, p. 68.

been in production since July 1964. Officially commissioning the first one million tons unit of the refinery on January 1965, Professor Humayun Kabir said, "It is the first giant step towards setting into motion the wheels of industrial revelution in the country, particularly in rural Bihar". He described the projects as another milestone in expanding the area of Indo-Soviet friendship and co-operation in the economic field and expressed a deep sense of gratitude to the Soviet Government for havin help ed India in setting up several big public sector plants, including the Barauni Refinery.

The Barauni Refinery, occupying an area of 850 acres, is the biggest oil processing complex so far built in the public sector. It is so large that it is difficult to go round all the units in a single day. The road ways within the plant measures above 12 Km and the railways about 7 Km.

The refinery receives its supply of crude from the Nahorkati a oil field, in Assam through a 720 mile pipeline. The Barauni refinery is supplying Low Sulphei Heavy Stock, popularly called furnace oil, to the steel mills. In fact, the production pattern at the Barauni Refinery has been diversifeied to cover practically

the entire range of petroleum products from domestic gas and aviation jet fuels to road asphalt. It is also producing light diesel oil to meet the requirements of farmers for lift irrigation.

Distribution

Another sphere where the Soviet Union has given India valuable aid is the distribution of oil products. The Indian oil company (IOC), which was formed in June 1959 to distribute the oil products of the public sector refineries, entered the market next year, while these refineries were still under construction, with the oil products imported from the USSR at cheaper prices on a rupee payment basis under an agreement signed in July 1960 The import of oil products from the Soviet Union and their distribution under state auspices breached the monopoly of the international oil companies in the key sphere of marketing, and strengthened the hands of the Government in dealing with them. The Indian oil Companies (now the Marketing Division of the Indian Oil Corporation) thus gained a strategic position in the oil market, and

become of the main links in the public sector undertaking in India.[1]

Related to the distribution programme is the establishment of several product pipeline in the public sector the most noteable being two from Barauni refinery to Calcutta(380 miles and Kanpur 430 miles).

The Economic Impact of Oil Industry

The setting up in India of an oil industry of its own, not only enabled the country to save foreign exchange resources but also to reduce her dependence on foreign oil monopllies. Petroleum products are now exported from India to Ceylone and Japan and foreign exchange earning were expected to exceed Rs. 6 crores during 1968.[2]

Thousands of labourer are employed in oil industries. Over 2,500 persons have found employment at the Barauni refinery alone. Small villages near Barauni

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1. Tribhuwan Nath, Soviet Review, Vol. VII, 1970, p.57.
2. Hindustan Times, January 29, 1969.

are developing as small industrial countries, hundreds of engineers and technicians have been trained in Russian method of oil production. India herself is producing equipments necessary for oil operation.

Barauni is one of the six "areas of potential growth" marked out by the planners of Bihar. The following projects have been envisaged for the Barauni area: The fert liser plant, a caustic soda, chlorine and PVC plant, a factory to manufacture synthetic wool, and various other petro-chemical industries based on the gases and by products available from the oil refinery.

The public sector refi eries processed 6.3¼ million tons of crude oil in 1970-71. The turnover of the corporation for the year amounted to Rs.720.01 crores, which indicates the extent of the saving in foreign exchange that the country has made. Refining and marketing in the public sector have not only given a new direction to the oil industry but have been a prime mover in accelerating the pace of economic progress in the country.

India has made definite though slow progress in establishing public enterprises in all aspects of the oil industry. This may have involved an uneconomic use of resources, but perhaps the gain in bargaining power will bring her greater economic return in the long term. It must

be admitted that India has shown extra-ordinary versatility in seeking methods to break the western companies monopoly, whatever the judgement may be on her actual administrative efficiency. However, it is clear that no break through to public sector operation could have been achieved without help from the Soviet bloc.[1]

The Ophthalmic Glass Project

The ophthalmic glass project at Durgapur is another example of the economic co-operation of the USSR. This project was started with capital of 3 crores of rupees. Of this 1.17 crores rupee is covered by Soviet credit. This plant will produce 300 tons of ophthalmic glass including 103 lacks of ophthalmic lences per year. The glass plant will give employment to one thousand workers and save foreign exchange nearly rupees one crore.

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1. P.J. Eldridge, The Politics of Foreign Aid in India, p. 133.

Precision Instruments Plants

Another important contribution of the USSR which is very helpful in the industrial development of India is precision instrument plants at Kotah in Rajasthan and Palghat in Kerala. The Kotah plant will produce 13,800 units of various kinds of measuring instruments The Palghat plant will produce 5 lakhs manometers and one lakhs other instruments, both the plants will save about Rs. 20 crores in foreign exchange annually. These plants provide the engineering and technological base of the national economy. Hundreds of workers are being trained in modern technology and science.

Soviet Collaboration in Medical Industry

In modern society health is an important subject for government activities. The economic progress is not possible unless the people of the country are healthy. As India is a vast country she requires medicine for millions of people. The country spends crores of rupees for the import of foreign drugs and medicines, which can be saved through foreign exchange. It was essential to produce drugs in the country itself. Fortunately,

with the help of the USSR three important projects have been started in the country, namely, the Surgical Instruments Factory in Madras, the Antibiotics Plant at Rishikesh and the Synthetic f drugs Plant in Hyderabad.

Surgical Instrument Plant - Madras

In the suburbs of Madras city new building of a surgical instruments project have recently appeared, which is being built in the public sector with Soviet collaboration. The project is being built as per Soviet design. The major part of machinery is obtained from the USSR.

The bulk portion of surgical instruments will be processed as per the new technology by cold pressing method, which has proved its efficacy in the USSR where it is widely used at many plants manufacturing instruments for medical industry. The coining press(cap.800t) has been mounted in the shop for that purposes. The shop is supplied with all necessary items for highly productive manufacture of forgiving dies. A hydraulic press has been erected (cap. 1,000 kg.) On which we shall do the cold pressing of die impressions with the help of

master-punches which are being made in tool room at present.[1]

Economic Impact of Surgical Plant

About 1,400 workers are employed in the plant 700 quarters for workers. A staff co-operative society is running in the campus. India has been importing surgical instruments from England, Germany and other countries. The Madras Plant is now producing 180 various types of instruments and thus saving considerable foreign exchange. Several Soviet experts have been training a number of workers in the production of instruments. Thus the Madras Plant is an economically sound unit and will one of the finest project in the medical industry of India.

The Antibiotics Plant, Rishikesh

The Rishikesh plant is designed to manufacture 300 tons of antibiotics annually including 86 tons of penicillin, 70 tons of streptomycin 15 tons of dihydrostreptomycin, 70 tons of chlorotetracycline, 25 tons of Oxytetracyclin, 25 tons of tetrac clin and 10 tons of nistatine. On reaching its rated capacity it will be the biggest

1. Soviet Review, Vol.II, No.42, August, 28,1965.

antibiotics plant in the whole of Asia and one of the largest in the world.[1]

Once there was a forest now it is a small industrial town near Rishikesh. The plant is in area of 900 acres. The first consignment of Soviet equipment, out of total worth Rs.4.5 crores, was unloaded at the plant site in December 1962. There are three thousand employees in the Rishikesh plant. There are hostels for trainees, a rest house, and hundreds of quarters of workers in the area of the project.

The 22 crores of rupees which will be invested in the Rishikesh project will be re-embursed in no time. The annual gross sale of antibiotics drugs is expected to amount to Rs.20 crores. It is hoped that the Rishikesh plant, on reaching its rated capacity will be able not only to fully meet India's requirements in Penicillin, Streptomycin and other vital drugs but even to export part of its output. To begin with, even if 2 per cent of the drugs exported, it would earned Rs.40 lack in foreign exchange. The significance of this will be brought

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1. Soviet Review, Vol. II, No.42, August, 28,1965.

home to us if we realise that for importing streptomycin alone India has been spending Rs.160 lakhs annually.

This plant has been producing life saving drugs and thus improving the health of the people of the country.

The Synthetic Drugs Plant - Hyderabad

The plant of Hyderabad has capacity of production 850 tons of synthetic drugs and 4,500 tons of chemicals from herbs. The following table shows the production of plant in a year.

Table 8

Production of Synthetic drugs

Items	tons of a year
Sulphadimidine	280
Sulphaguandine	130
Sulphacetamide Sodium	50
Sulphanilamide	50
Acetazolamide	25
Isonicotinic acid Hydrazide(INH)	20
Luminal	10
Phenacetin	100
Amidopyrin	40

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Metamizol	10
Piperazine	50
Vitamin B	30
Nicotria Mide	20
Folic Acid	1
Bilamin B_2	5
Ditrazine	30
Total	851

Source: Soviet Review, Vol.II, No.42, August 28,1965.

For this plant about 5,100 tons of equipments were supplied by the Soviet Union. This project also has an important impact on the economic development in the localities of Hyderabad. The project opens up vast potentialities for the growth of ancillary industries for meeting the requirements of raw materials totaling about 30,000 tons per annum and consisting of 120 Kinds of basic and auxilliary items of chemicals and packing materials.

The USSR collaboration in medical industry is fine example of friendship of Soviet Union and India. With financial and technical assistance the USSR has been helping India in her march towards economic growth. India is near achievement of self-sufficiency in the production of medical instruments and drugs.

The cost of these three Soviet aided projects is estimated at Rs.40 crores, and their full capacity production will yield drugs surgical instruments of nearly Rs. 38 crores every year. Considering that India is spending Rs.10 crores annually on import of drugs alone, she now is saving much foreign exchange. The drugs are available at cheaper prices.

The Soviet aided projects have given a sound basis of industrialisation in India. The economic growth of India has been quite empressive by contemporary standard. The rate of growth of her national income has increased. Literacy, education and health service have gone upward. "The revised index number of industrial production(with 1956 as the base year) show a compound rate of growth of 5½ per cent per annum in the period 1951-55 and of nearly 7½ per cent since the beginning of the Second Five Year Plan. In the first three years of the Third Plan period, the rate of growth has been close to 8 per cent per annum."[1] The organised industrial sector gave a shift investment strategy which resulted in striking growth of output.

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1. K.N. Raj, Indian Economic Growth, Performance and Prospects, Allied Publishers, 1965, p.15.

"Special feature of industrial development specially since the commencement of the Second Plan in 1956-57 has been the growth of capacities in steel, aluminum, engineering, chemicals, fertilisers and petrolium products. Apart from these large investments have been made in industries producing heavy electrical equipment, heavy foundry forge, heavy engineering machinery, heavy plates, and vessels etc. - all of which will become available in increasing quantities from now on".[1]

It is clear that the growth of organised industrial sector accelerated through the three plans. The phenominon of the growth of public sector in India during the period is to be attributed largely to the socialist ideological goal which advocates public sector investment and state ownership of capital stock.

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1. Govt. of India, The Draft Outline of the Fourth Five Year Plan, pp. 10-11.

CHAPTER IV

SOVIET AID AND AGRICULTURAL DEVELOPMENT

1 - Establishment of Agricultural Farms, at Suratgarh and Jetsar

2 - Aid for seed farms

3 - Tractor Factory

4 - Gift of food

5 - Economic impact of agricultural collaboration

India's Economic Development and Agriculture

India is an agricultural country, about 75% of the population of the country has been engaged in agricultural activities. But the average productivity of agricultural object is very low.

The 1960 FAO Production Year Book supplies the following comparative average annual yields, all in 100 kg. per hectore, the rice figures for the years 1957-59 and the wheat and maize yields for 1959-60*

Rice		Wheat		Maize	
India	12.9	India	7.9	India	8.7
Burma	15.6	Iraq	4.4	Iraq	6.2
Malaya	21.1	Lenon	8.0	Thailand	15.9
Korea	28.8	Israel	11.8	Japan	21.7
Taiwan	29.8	Japan	23.6	U.S.A.	32.4
Japan	45.9	Canada	12.1		
U.S.A.	35.9	U.S.A.	14.3		

Many reasons may be and have been advanced for this low yields per acres. The lack of adequate knowledge and insufficient capacity to make the necessary investments

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* John P. Lewis: Quiet Crisis in India, Asia Publishing House, Bombay, 1962, p. 143.

and inadequacy of necessary inputs like fertilisers and pesticides are among the most important factors responsible for this. The strategy of our approach to agriculture has to be to see to it that these defects are remedied at the point where they inhibit production most namely the farmer.

The national leaders of the country have been aware of these facts. They have been trying through national planning to increase the agricultural productivity but on account of population growth and other natural havoc such as floods, and famine India has not yet achieved self-sufficiency in food production. The following table shows the imports of foodgrains.

Table 9

Production and Imports of Foodgrains(in millions tons)*

Period	Average annual production	average annual imports	Imports as per cent of total supply
First Plan	65.8	1.8	2.6
Second Plan	74.2	3.8	4.9
Third Plan	80.5	6.5	7.5

* Source: P.J. Eldridge, The Politics of Foreign Aid in India, Delhi, 1969, p. 112.

The problem of agriculture is still a difficult one. To solve this problem, the Indian authority naturally attach the greatest importance to the modernisation of agriculture and the introduction of new techniques in it. It is here that the Soviet Union, with its vast experience in large scale mechanised farming, has given India significant help. The Soviet Union has been of the view that without a well developed mechanical and chemical industry and agro-based factories to process food, real progress would remain elusive. Thus Soviet assistance to India in the field of agriculture, as in developing the basic industries, has gone to the building up the basic seed base, as also in mechanising agriculture. The Soviet Union has helped in the development of two large-scale mechanised model state farms, Suratgarh and Jetsar.

The Suratgarh and Jetsar farms are of vital importance for Indian agriculture because they point to the way in which certain big problems can be solved satisfactorily and to make India self-sufficient in foodgrains.

It is estimated that in India out of a total of 806 million acres almost 200 million are effected by erosion.

This is almost a fourth of the country's land surface. Wind erosion covers 80,000 sq. miles, then 28,400 sq. miles are under the sand dunes while ravines cover about 6 million acres. While efforts and resources are being directed towards meeting the problem it is being increasingly recognised that much can be done to make the 200 million acres of land productive in foodgrains and fodder and forests with the help of multi-purpose large size farms, which could be set up to achieve the long term objective as well as immediate purpose of raising agricultural productivity.

The Soviet aided Central Mechanised Farm at Suratgarh has clearly shown that by proper use of modern scientific machines and methods even a desert could be converted into smiling farm land and much could be learnt from this achievement for the extension of agriculture to culturable wastelands.

Suratgarh Farm

The Suratgarh Farm is in Rajasthan. The farm was inaugurated on August 15,1956. At first Soviet Government

gave the gift of farm machinery worth Rs. 75 lakhs. The farm is spread in 30,320 acres of land. During the 15 years of its existence, the Suratgarh farm has made history becoming the biggest venture for multipurpose jobs.

The agricultural operations at the Suratgarh farm were carried out on 27,000 acres and the farm made a gross profit of Rs.12,64,803 in the year 1962-63. The farm is helping the state government as well as the whole country so far as agriculture is concerned. Suratgarh farm changed the hydrology and micro-environment of crop production. The Suratgarh farm has in fact, given a lead in the efforts planned for the control of the desert and the reclamation of land. The Suratgarh farm is also producing quality seeds which are essential for agricultural development. The Suratgarh farm have checked the movement of sand towards the cultivated area. Thus the farm has shown the way of advance to Indian agriculture.

Jetsar Farm

Encouraged by the success and performance of the Suratgarh Mechanised Farm, the Government of India decided

to set up another large-scale farm in Rajasthan in the neighbourhood of Suratgarh, at Jetsar. This 30,000 acre farm was supplied with Soviet agricultural machinery worth Rs.2.6 million on commercial basis. The total outlay on the Jetsar farm is Rs.156 lack. Gradually its areas is to be expanded. The Jetsar farm is situated within the reach of Rajasthan Canal. The construction work at Jetsar has been already completed. For the sake of economy agricultural operations are being coordinated with those at Suratgarh. In the beginning only 10,000 acres were brought under cultiv tion. Depending on the supply of water the area under cultivation will be progressively increased to 20,000 acres. In the initial stage the Jetsar farm will produce about 25,000 mounds of cottons and oil seeds and 50,000 mounds of fodder every year. The Jetsar farm as well as Suratgarh farm both are helping in mechanising of the agriculture of the country. Both have brought new pattern of agricultural development in India.

Besides foodgrains the Suratgarh farm produces about 300 tones of cotton, 12,000 tones of sugarcane and 1,900 tones of oilseeds annually. The farm also have livestock and poultry sections. At present the farm has a number of cows and bulls and supplies pedigree animals to the peoples of that area. The poultry section has 640 birds,which

produced 22,420 eggs in 1963. In 1961-62 an orchard with 11,600 malta, grafts, 300 mango grafts, 1,500 plum plants, 500 vine grapes and 1,500 peach plants were set up, which by now has developed into a flourishing orchard. In order to provide nedessary water to the orchard, artificial rain-making equipment also supplied by the Soviet Union is used.[1]

Aid For Seed Farms

Under an agreement with the Government of India the Soviet Union has gifted machinery worth 1.3 crores, for developing fine seed farms in Andhra, Mysore, Haryana etc. It has offered to set up 10 more seed farms and 15 service stations for agricultural machines on trade credits. Costing Rs.150 million.

A vigorous exchange of seeds and seedlings of agricultural crops and medicinal plants is going on between the two countries. In the last three years alone, Indian organisations have received samplings of different Soviet

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1. Ten Years of Soviet-Indian Economic Co-operation, February 2, 1965, Vol.XXIV, No.8, p. 87.

varieties of apple, pear fig, plum, pomegranate and other trees, and cutting of 15 of the finest varieties of grapes. In all, these organisations have received about 2,000 samples of seedlings and cuttings of fruit plants and about 1,000 specimens of seeds of diverse agricultural crops and medicinal plants - grain, grai -bean, millet, oil-bearing, vegetable, melon, fodder grass, etc. It should be pointed out that Indian selectionists are conducting highly interesting work with such crops as sugar-beet, sunflower and a number of the best Soviet varieties of melons and grapes.

The Soviet Union in its turn, has also been receiving from India a large number of samples of seeds of different agricultural crops and medicinal plants, including most interesting varieties of wheat and barley.

Soviet Union has also extended its co-operation in the field of scientific breeding of livestock. The beginning of the exchange of pedigree livestock started in the year 1958. Soviet Union presented India with ten sire rams of the stavropal breed from the "Soviet Runo" which is one of the finest pedigree livestock breeding farms in the Soviet Union. All the Soviet pedigree livestock and horses exhibited in the 1960 World Agricultural Fair held in New Delhi, were presented to the Government of India by the Soviet Government.

The Indian specialists who took charge of these animals found them very useful for experimental purposes and reported that the animals could easily adopt themselves to Indian conditions.

Besides, the Soviet Union gave India 150 fine fleeced Soviet sheep, which will be used for raising the indegenous wool production. A long-term plan for further purchases of improved breed from the Soviet Union is currently und r consideration.

Indian livestock breeders took great interest in the Soviet theory and practice of artificial insemination of livestock and also in the work of state stations and collective farm centres engaged pedigree livestock breeding. The Soviet Union also supplied several sets of equipments for artificial insemination of cows, horses, sheep and pigs. These sets are being used in India at research establishments and large livestock raising farms.[1]

The Soviet Union has supplied vast quantities of fertilisers like ammonium sulphate, potassium choloride

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1. News and Views from the Soviet Union, Vol. XXIV,No.8, February 2,1965, p. 93.

and urea on trade credit. It has also expressed its readiness to increase the supply of fertilisers and to help the Government of India to set up fertiliser projects. From the point of view of yearly average percentage the Soviet Union exported fertilisers to India 0.4 in 1958, 1.9 in 1963 1.3 in 1965, 5.6 in 1967 and 11.8 in 1968.[1] Negotiations are proceeding on the possibility of setting up fetiliser plant with Soviet assistance. The consumption of nitrogen had increased fourfold from less than 434,000 tones in 1964-65 to 1,700,000 tones in 1968-69. Further effort in this direction is still required.

Soviet Tractors in India

The majority of Indian farmers depends on out moded farm implements to plough the land. In 1956, when the Suratgarh came into being, there was 38 millions wooden ploughs in the country. The Soviet Union is exporting to India tractors and other farms and road-building machines and thus helping the process of mechanising the country's agriculture. The Soviet tractors are imported on rupee

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1. Soviet Review, January 1970, p.21.

payment basis. One out of four tractors in India is already Soviet made, the total number of tractors in operation in various constructional and agricultural activi ies reaching the figure of 20,000 including new delivery agreement. The Soviet tractors have become so popular in India that in the northern region alone there are over 20,000 farmers who have registed their names with dealers for them.

Tractor Factory

A tractor factory in the private sector is being set up at Loni in U.P. with Soviet collaboration.

The factory would have the annual capacity for manufacturing ten thousand 14 to 20 Hp. tractors and five thousand 50 hp tractors.[1]

Gift of Food

The Soviet Union also gave India a free gift of 200,000 tones of foodgrains, costing Rs.150 million, including

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1. Soviet Review, Vol. VII, January 31,1970.

freight charges, during the food crisis in India in 1966. Food aid to India by the U.S.A. is also worthy of consideration. In an another chapter the policy of American aid and Soviet aid has been compared and some more light on food aid is thrown in that chapter.

Economic Impact of Agricultural Collaboration

Impact of Soviet aid to agriculture is considerable. The most important achievement of the farms at Suratgarh and Jetsar is that the desert of Rajasthan is changing into a fertile land, producing great quantity of wheat and corns. When fully developed the Suratgarh farm will produce 70,000 mounds of wheat seed, 12,000 mounds of cotton seed, vegetables and fruits. On the animal husbandry side, the farm will provide 150 bulls of the Tharparkar and Murrah breeds, 120 pedigree rams of the Bikaneri breed and 10,000 birds of improved poultry breeds, which will help nearly areas in Rajasthan to upgrade indigenous stock. The nurseries will supply 50,000 plants annually for local distribution.

Soviet tractors have been very helpful in bringing about the Green Revolution in India. The farmers of Haryana generally use Russian tractors. The result is that Haryana is surplus state in food production. The mandies of Haryana are full of wheat, the markets are Haryana is are field with grapes and other fruits. The Soviet tractors and the Indian soil and the peasants engaged on it are no longer alien to one another, they are companions engaged in a common endeavour to bring about the much needed advancement of Indian agriculture.

It is believed that there can be no sustained improvement in general living standards without appreciable advance in the huge agricultural sector, which in its present backwardness is a drag on progress. A substantial increase in agricultural production is necessary to provide an assured surplus for a large industrial population, a market for the output of industry, and an appreciable constribution to government revenues for the financing of essential services.

The Soviet Union gives emphasis on industrialisation for economic development. Agriculture may be developed as an industry. But in India farmers have very small holdings. When a family in India is divided, the agriculture holdings

is also divided, and therefore big agricultural farms are not possible in every village. This is a great handicap. Even package programmes have not been successful in our country. On account of the rapid growth of population it is morelikely that the fragmentation of land and the decline in the average size of holdings will continue. It is evident, therefore, that the structural problems of India's agriculture are mainly those of small farms which to a great part belong to the category of the so-called uneconomic holdings. In USSR collective farming is essential. The collective farms have also their targets and their planning. In India, however, collective farming will ~~erect~~ create difficulties in determining shares of the production. Moreover India decides her own planning. The USSR cannot imposed its own methods on India's agriculture. However, its help in agriculture is not insignificant.

CHAPTER V

ECONOMIC DEVELOPMENT THROUGH TRADE WITH THE USSR

1 - International Trade and Economic Development

2 - Soviet Foreign Trade Policy

3 - India's Trade with the USSR

4 - First Trade Agreement

5 - Second Trade Agreement

6 - Soviet Exports

7 - Third Trade Agreement

8 - Fourth Long-Term Trade Agreement

9 - Trade Agreement in 1971

10 - Main Principles of the success

11 - Impact of Trade with the USSR on India's Economic Development

International Trade and Economic Development

Generally all underdeveloped countries, have some difficult problems of balance-of-payments. Concentration of exports on a narrow range of food stuffs and raw-materials is a common feature of underdeveloped countries. Moreover, the markets for many of these major exports are highly unstable. Their imports are high. Exports are low. They feel very often difficulties for foreign exchange. In such a situation foreign trade may be helpful. Of course, there is controversy among modern economists about international trade with underdeveloped countries. Some hold that economic development is not effected with foreign trade. There are others who think that international trade is sometimes harmful for underdeveloped countries.

Professor H. Myint believes that foreign trade has not been helpful in economic growth of Asian countries.

Professor Gunnar Myrdal also holds that trade between underdeveloped countries and advanced countries brings forth vicious spiral and disturbs the productivity of underdeveloped countries.

The argument that economic development of underdeveloped countries is impeded by a tendency for long-run

deterioration of terms of trade of raw materials - producing countries has acquired added importance because of the support to this thesis by Dr. Prebisch and Dr. Hans Singer.[1] This thesis has not been accepted by many economists. The trend in the world trade often changes. Underdeveloped countries sometimes may suffer with trade with developed countries.

However, foreign trade may be helpful in certain circumstances. The trade may be changed into aid. It depends on the desire of the advanced countries. If an advanced country desires to help an underdeveloped country through trade, then the trade may bring the economic growth of the underdeveloped country. The trade of advanced countries with underdeveloped countries are generally based on the following three principles:

1 - Gains from trade objective

2 - The strategic - materials objective

3 - Investment income objective

Gains from Trade: International trade is one of a select group of activities from which all participants benefit.

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1. Higgins, United Nations and the US Foreign Economic Policy, Homewood, Illinois, 1962, p. 38.

The reason all countries typically benefit is that their relative cost of producing similar commodities differ. Another principal reason that their relative production cost differ is that they are endowed with, and acquire, productive factors - rainfall and monazite no less than people and machinery - in differing proportions. Because relative production costs differ among countries trade is an efficient way of "producing" those commodities in which a country's costs of production are relatively high. It is "efficient" because the country concerned can acquire more of the commodities for which its production costs are relatively high, by importing them in exchange for exports of commodities in which its costs are relatively low, than by directly producing the imports at home instead of the (forgone) exports. Variety, in other words, the spur to trade no less than it is the spice of life.[1]

Terms of Trade: It is reasonable to contend that, as economic growth occurs in underdeveloped areas, their factors endowments may become more like those of the developed countries. As an illustration, the stock of capital is likely to increase in relation to other factors.

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[1] Charles Walf, Jr: Foreign Aid, Theory and Practice, in Asia, Princeton, 1960, p. 271.

As, or if, factor endowments become more similar, divergences in relative production costs between developed and developing countries may decline, and with such a decline may come an improvement in the terms of trade of the developing countries.[1]

Volume of Trade: Gains from trade depend on the volume of trade as well as the terms. It is said that the amount of the trade of a country increases, when the output and income of the country increases.

Strategic Materials: The strategic materials objective of economic aid is special case of the gain from trade objective. Economic development of underdeveloped countries will increase exportable supply.

Investment Income Objective: Besides strategic materials and gains from trade, a third economic objective may be referred to as the investment income objective. Economic

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1. Ibid., p. 273.

aid can be used to raise the yield on private capital in underdeveloped countries by creating a variety of external economies from a more literate labour force to the more familiar social overhead facilities.[1]

Soviet Foreign Trade Policy

The USSR always stand for a polity of expanding mutually beneficial trade with other country, because the policy of friendship and cooperation with other states stems naturally from the very character of the Soviet Social system.

Foreign trade in the Soviet Union is an exclusive monopoly of the state as was decreed by the Soviet Government on April 22, 1918. According to the constitution of the USSR, adopted in 1936, foreign trade based on state monopoly is under the jurisdiction of the supreme organs of the Soviet Government.

The USSR firmly and consistently adheres to its policy of expanding and consolidating economic relations with all the countries of the world, thus following the principle of peaceful coexistence of states with different social systems, enunciated by Lenin. But the Soviet Union

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1. Ibid., p. 280.

takes special interest in the development of economic and trade relations with the developing countries, which were the victimes of colonial exploitation.

The Soviet Union conducts trade with most of the developing countries on the basis of long-term agreements which promotes the stabilisation and development of economic relations. Machinery and equipment predominate in Soviet experts to these countries, since they contribute to the development of national industries; on the other hand, the Soviet Union is one of the largest buyers of traditional goods, on the exports of which most of the developing countries depend.

Broadly speaking, in the words of Professor D.S.Nag, "The Soviet foreign trade policy coincides with the objectives of development plans of underdeveloped countries. It provides for: supplies of machinery and equipment, strengthening of the key branches of national economy, aid on inter governmental basis for the nation as a whole and not for any particular section of society, unreserved transmittal of technical know-how, interest rate and payment suited to the circumstances of the recipient country, regular imports of primary produce at pre-fixed prices and

above all without any discrimination prompted by the motive of profit or monopoly gains. Observations contained in an American Government publications are worth quoting. "Many immediate interests of the USSR coincide with many of the current objectives of the less developed countries at this turning point in their history."[1] The Soviet Union has taken the unprecendented step of unilaterally abolishing all tariffs on goods imported from the developing countries. Accordingly, a trade contract with the Soviet Union often helps in solution to a number of economic problems. Some important transactions are based on none-economic factors. For instance there is little evidence of domestic consumption of cashew-nuts within the USSR. Yet the Soviet Union imports a quite large quantity of cashew-nuts from India.

India's Trade with the USSR

Trade relation between India and theUSSR is based on equality and mutual benefit. It is conducted on a balanced basis. Under long-term agreements on equal deliveries and

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1. D.S.Nag, Foreign Economic Policy of Soviet Union, Agra, 1960, pp. 72-73.

through settlement of all accounts in Indian rupees, thus enabling India to pay for the goods by deliveries of traditional and other Indian goods, instead of paying in convertible currency.

This form of payment also applies to repayment of credits granted by the Soviet Union which is also important for the Indian economy.

As a result of economic and technical co-operation between India and the USSR, "India's trade with the Soviet bloc has expanded significantly, although for 1957 this trade still accounted for only about 4% of total Indian trade. There has been a net import surplus from Russia since early 1955, as distinct from the positive balance which tended to prevail in earlier years. For the bloc as a whole, India had imported surpluses growing from $5 million in 1955 to $26 million in 1957. These figures are the result of a 2.3 fold increase in Indian exports and a 2.8 fold increase in imports between 1955 and 1957, during which period total Indian exports and imports increased 1.1 and 1.5 times respectively".[1]

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1. Wilfred Malenbaum, The Economics of Competitive Co-existence, East and West in India's Development, National Planning Association, p. 42.

India holds a leading place in the Soviet Union's trade with the developing countries. The trade turnover between the two countries in 1968 reached 330 million roubles. It comprises 40% of Soviet trade with the developing countries of Asia. The Indian share in the Soviet Union's foreign trade amounted to 1.8% in 1968. On the other side the share of the USSR in India's foreign trade has risen rapidly from 2.2% in 1956-57 to 10.4% in 1968-69. According to Indian statistics the Soviet Union with a turnover of 1,483 million rupees in 1968-69 had become India's second biggest trading partner, after the USA. The following two tables show rapid growth of Indo-Soviet trade:

Table

Export and Imports between India and the USSR (in million Rs/million roubles)

	1955	1960	1965	1966	1967	1968
Exports from the USSR.	6.6 55.0	42.4 353.3	193.5 1,612.5	174.0 1,45.0	146.2 1,218.3	165.0 1,375.0
Imports from India to the USSR	4.0 33.3	61.6 513.3	169.4 1,411.6	172.0 1,433.3	162.7 1,355.8	164.6 1,371.6
Turnover	10.0 88.3	104.0 866.6	362.9 3,024.2	346.0 2,883.3	308.9 2,574.2	329.6 2,716.7

According to the Soviet Statistics.

Table

Exports and Imports between India and the USSR

(in million Rs.)

	1960-61	1965-66	1966-67	1967-68	1968-69
Exports of the USSR to India	453.8	1,464.3	1,233.7	1,217.9	1,483.1
Imports to India from the USSR	250.0	1,309.9	1,138.0	1,112.2	1,858.0
Turnover	703.8	2,774.5	2,371.7	2,330.1	3,341.1

According to Indian Statistics[1]

The First Five Trade agreement between India and the Soviet Union was signed in 1953, the second in 1958 and the third in 1963 which has been extended upto the end of 1970. A new long-term trade agreement was signed by the India and the USSR on September 17,1971.

First Trade Agreement

The first Indo-Soviet agreement was signed on December 2,1953. According to this agreement both the countries were to exchange the goods, and important aspect of the agreement was that Indian rupees was at first time

1. Soviet Review, Vol. VII, January 1970.

recognised as the currency for the settlement of trading account. However, Indian exports were restricted mainly to a few traditional items such as hides, silk and spices. By and large the list of commodities began to grow and among other items included tea, coffee, unmanufactured tobacco, castor oil, jute, hessian fabrics, woolen fabrics, textiles goods, handicrafts, utility articles cashew kernels, mica and sheloc, and various industrial raw materials. The imports included news print, iron and steel materials of a wide category such as billets, slabs, beams, girdles, angles, channels, rounds, sequares, sheets, plates, farm tractors, zinc, ingots, aluminium bars and rods, aluminium wires and rails, and chemicals and fertilisers like sodium hydroxide, sodium carbonates, ammonium sulphate, and nitroe of potash. The trade turnover between the two countries began to rise from year to year, going up from a mere Rs.18 million in 1953 to Rs.54 to 331 millions in 1958-59. The Soviet Union supplies to India with goods indispensable for her economic development. These are mainly machines and equipment for Indian industries. On her parts, India supplies the USSR with agricultumal and mineral raw materials.

The trade between the two countries develops successfully because payment is made in Indian currency.

The proceeds from the sale of Soviet goods in India as well as repayment of Soviet credits are spent for purchasing Indian goods. There is no deficit in the trade and payment balance in the trade btween India and the USSR. According to Marshall I. Goldman "Indian export to Russia, when being used to repay the Russian foreign aid has its positive and negative aspects. To the extent that prices are rising in India, India is paying less for its aid than intended to. On the other hand, repayment of American aid may be made in rupees which are spent only within India. Nothing is purchased for shipment outside of India. Therefore American aid unlike Russian aid, does not absorb resources that could otherwise be exported and in turn generate hard currency".[1] The second criticism is that Russian purchase goods for rupees that they cannot obtain elsewhere. And another criticism of commodity repayment is that the Russian resell the commodity for hard currency at a reduced price Whatever may be the value of these criticism, an increase in trade with another country is generally a good thing clearly there have been benefit for India in its trade with the USSR.

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1. Marshall I. Goldman, Soviet Foreign Aid, New York, 1967, p. 109.

Second Trade Agreement

The second agreement signed for the period of 1959-63 provided for still more favourable conditions, increase in items of trade and for strengthening the business contacts between Soviet foreign trade organisations and Indian firms.

Indian Exports

In recent years imports of Indian goods of the Soviet Union have considerably increased both in quantity and in variety. They include teas, coffee, tobacco, jute, sacks, jute fabrics, goatskins, vegetable oils, spices, wool, mica, shelac, woolen textiles, shoes and carpets.

Among these, jute bags, jute fabrics woolen textiles and shoes have pride of place. Whereas in 1962, exports of Indian jute bags to the Soviet Union amounted to 29.5 million pieces in 1964 they were 110.5 million pieces. Similarly, jute fabrics doubled in 1964, the figure being 70 million meters.

The exports of Indian shoes more than doubled in 1964, the figures being 221 thousand pairs in 1962 and 500 thousand pairs in 1964.

In 1962, the Soviet Union started purchasing Indian cotton textiles and semi-processed, goats-skins and the

following years it also purchased safety razor blades, knitted garments, men's shirts, socks, sports goods and rims for glasses.

The share of manufactured goods and semi-prepared products exported to the Soviet Union amounted to 20% of that country's imports in 1955, 29% in 1962 and 38% in 1963 and 1964. Russia now purchases about 60% of the woolen textiles and about 50% of foot wears.

The Soviet Union holds the leading places in the import of Indian raw wool (40%), goatskins(50%) castor oil (42%), tobacco(47%) of the total volume of India's exports of all these goods.

Soviet Exports

In 1964 the share of equipment and machinery in the Soviet exports to India reached 54%. This is indeed a great achievement, particularly taking in view the fact that ten years ago the Soviet supplies to India were limited only to separate items of raw materials and some goods for industrial use(rolled ferrous metals, cement etc.). Participation of the Soviet foreign trade organisations

in the construction of Indian power stations is not confined to the designing and supplying of the main equipment but also includes supplying to these projects Soviet earth-moving, lifting and transport equipment, means of transportation, as well as the installation of equipment under supervision of Soviet specialists.

Under the trade agreement the Soviet Union supplies to India, apart from power station construction equipment, industrial materials and structures, dump trucks, graders and other machines and goods to meet the requirments of the irrigation systems and industrial projects constructed or to be constructed in India, including those of great nation-wide importance, such as the Bokaro Steel Project, the Hydro-technical Projects in Farrakha, Mulah and others. As in the case of power stations, in each of the said projects Soviet foreign trade organisation take mutually assisted and coordinated action which, besides being appreciably advantageous for the Indian side, considerably enhances the efficiency of construction.

Agricultural Machinery

Machine and equipment required to meet the needs of Indian agriculture are an important item of Soviet exports to

this country. In 1964 9,000 Soviet made tractors - accounting for about one-fifth of the total number of tractors in India were working in the field of the country. The signing of contracts for the deliveries of the complex of Soviet agricultural machines and equipment for the second stage of the Central Mechanised Farm in Jetsar, Rajasthan appeared to be a big event of 1964. Participation of the USSR in the construction of this farm has been hailed in India as one more striking example of the assistance rendered by the Soviet Union to India in the matter of the development and modernisation of its agriculture. Many people in India remember the words said by Jawaharlal Nehru during his visit to Suratgarh Farm erected with the Soviet assistance "If Indian could have a hundred such farm its food problem will be solved".[1] Improved technology is the basic ingredient for accelerating agricultural productivity.

For the 5 years (1959-63) which coincide with the period of fulfilment of the second trade agreement the Soviet Union supplied to India machines and equipment in exchange for Indian goods to the tune of Rs.150 crores.

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1. Soviet Review, New and Views, February 2,1965, Vol. XXIV, No.8.

The export of Soviet machines and equipment erected a real basis for developing industrial power of India and its public sector in the first place. The share of Indian Government organisations in the total imports from the USSR was about 85 in 1963.

Raw Materials and Oil Products from the USSR

A considerable portion (46%) of the Soviet export to India consists of raw materials and industrial goods. The USSR supplies to Indian Industries such scarce commodities as rolled steel, zinc, lead, platinum, wood pulp, news print, chemicals and others. The deliveries of these goods have been considerably increased in the last five years: ferrous metals 4 times; wood-pulp three times, the import of Soviet pig-iron, rolled steel has been growing noticeably. In October 1964 the contract for the supply of 100,000 tons of foundry pig-iron and 45,000 tons of rolled steel was signed. The Soviet Union is annually increasing deliveries to India of new prints(in 9 months of 1964 along with it increased by 64%).

The deliveries of Soviet refined petroleum products under the first contract have helped India in saving foreign exchange to the extent of Rs.15 crores.

Moreover, India was able to save considerable funds of foreign exchange since the change for transportation of petroleum products were covered in Indian rupees, the goods having been delivered to India by the tankers of Indo-Soviet shiping line for which the charges are paid in Indian currency.

Besides, the deliveries of Soviet oil products to India at a reasonable prices brought about considerable redmotion in prices of foreign private oil companies for oil products in the Indian market.

The import of oil products from the Soviet Union is of great importance for India also in the sense that it predetermined the birth of the public sector in Indian trade industry when a new state organisation. "The Indian oil company" was established with the task to import and distribute these goods among Indian consumers.

Third Trade Agreement

The third trade agreement between India and the USSR came into force in 1964. In 1966 another agreement was made between the both countries for further development of trade.

A 100% increase in India 's trade with the Soviet Union was envisaged in the new five year trade agreement signed in 1966, Rs. 120 crores in 1967, Rs.130 in 1968, Rs.140 in 1969 and Rs.150 crores in 1970. The volume of trade between the two countries had increased from Rs.180 lakhs in 1953-54 to Rs.21,761 lakhs in 1967-68.

Under the terms of the agreement, the Soviet Union had agreed to import from India an increasing range of manufactured products of India's developing industries. These will from over 40% of the total exports from India during the period.

Among the products in which the Soviet Union had shown interests are electric lamps, refrigerators, electric fans machine tools, textiles processing machinery, automobile, batteries foom air conditioners,vacuum flasks, linoleum and PVC cloth. It will also purchase from India pigments, paints and varnishes, steel and weelen, furniture, plastic products, enemel wire, anumal hair other than wool, machine made woolen carpets woolen and art silk fabrics and hosiery cotton textile fabrics, garments, shoes,burshes and finished leather.

The agreement also envisages an increase in Soviet purchases of Indian leather shoes, ready-made garments,

spectacle frames and sports goods. It was expected that the sales of textiles would increase almost fivefold to Rs.20 crores per year in 1970 and shoes to almost 1.5 to 2 million pairs per year by 1970. Exports of jute goods would touch Rs.35 crores per year. Black paper exports would reach more than Rs.5 crores per year by 1970.

The purchase of tanned and semi-tanned goat-skins would be increased during the period in preference to raw skins. There would be all-round increase in the export of the usual traditional items from India such as tea, jute products, tobacco, coffee, cotton textiles etc.

On the side of India's imports from the USSR a prominent feature was the provision for machinery and equipment, and spares and components for maintaining the production programme of the various projects set up in India with Soviet assistance. In all about 40 projects would receive their components, parts and equipment under the trade plan.

In addition, the Soviet Union would supply to India in increasing quantities essential raw materials for maintaining economic activity, such as non-ferrous metals, news prints, sulpher, tin plates and ammonium sulphate.

Credit terms

According to the new agreement new credit terms for eight and ten years had also been provided for all major capital goods imports from the USSR which had to be so far financed by Indian on a cash basis under the trade plan.

India would take steps for setting up special manufacturing units for meeting the requirements of the Soviet Union in respect of items like leather foot-wear, fruit juices, garments, chrome, tanned and finished leather and electrical bulbs. The Soviet side would take corresponding action for setting up in the Soviet Union additional industrial capacity for meeting, India's requirements of ammonium sulphate, tin, plates ferro-alloys and special steels. India's import requirements of most of the petroleum products will now be covered from the USSR under the new agreement.

Mr. Patolichev expressed the hope that as a result of continuous consultations and steps proposed to be taken by the two countries during the coming five years, " a bigger and larger base would have been for further major expansion of trade between the two countries after 1970".[1]

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1. The Hindustan Times, January 7, 1966.

In addition, the USSR and India signed in 1966 a protocal under which Soviet foreign trade organisation agreed to sell Soviet equipment and machinery to Indian firms and organisations on commercial credit terms, by payment in equal instalments within a period of eight or ten years. The interests for the credit is 3% per year and the delivery date is taken as the date on which the credit become effective.[1]

As in every other field of association between India and the USSR, the shiping agreement, too highlights the principle of complete equality both in terms of tonnage participation and in the entitlements of cargo liftings and freight earnings.

The Indo-Soviet shiping service was started with a total complement of 12 ships, 6 Soviet and 6 Indian. The expansion of trade between the two countries had its natural effects in the shiping field also. As a result, the number of ships increased to 14 in June 1962 and once again to 20 from 1st January 1963.[2]

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1. Soviet Review, Vol. VII, January 31, 1970.

2. Indo-Soviet Economic Collaboration, 1955-65, p.46.

Fourth Long-Term Trade Agreement

The signing of a fourth long-term trade agreement between India and the USSR for the five year period 1966-70 marked the opening of a new bright chapter in the trade and economic relations of the two countries. The trade turnover between the USSR and India would be doubled by 1970 in comparison with the level of trade in 1964. During the last 2 to 3 years India has been pursuing a policy of reducing its imports and pushing up its exports. As a result, overall Indian imports in 1968-69 were nearly 16 per cent less than in 1965-66.

Accordingly the USSR exports to India a wide-range of industrial raw materials such as ferrous metals and pulp, and fertilisers. The Soviet deliveries cover about 50 per cent of India's requirements of news print and about 55 per cent of abbestor.

The Soviet Union imports from India both traditional and non-traditional goods. During the last few years there has been a change not only in the volume but also in the structure of Soviet imports from India. The USSR has increased its purchase of finished goods and semi-manufactures from India and their in Indian exports to the

USSR rose from 13 per cent in 1956 to 42 per cent in 1967.

The Soviet Union is now the fourth biggest importer of Indian goods. Soviet imports of Indian goods constituted 10.9 per cent of total Indian exports in 1968-69 as compared with 4.7 per cent in 1961-62. Between 1956 and 1968 India's exports to the USSR grew tenfold.

Table

Structure of Soviet Imports from India
(yearly average)

Articles	Percentage				
	1954-58	1959-63	1965	1967	1968
Jute	-	0.9	2.6	3.5	2.5
Wool	12.1	8.1	4.5	2.2	2.1
Hides and skins	15.7	13.6	6.5	16.7	12.2
Jute sacks	5.4	9.4	18.1	17.6	11.8
Jute packing cloth	3.6	5.2	5.6	7.2	5.5
Coffee	2.7	3.1	3.8	3.9	3.6
Tea	27.8	25.6	21.4	15.5	14.8
Spices	10.8	5.4	2.7	3.3	4.7
Cashew nuts	6.3	7.1	8.0	7.5	10.3
Leather footwear	3.6	3.9	1.5	3.1	1.5

Source: Soviet Review, Vol. VII, January 1970, p.23.

Table

Structure of Soviet Exports to India(yearly average)

Articles	Percentage				
	1954-59	1959-63	1965	1967	1968
Machinery and equipment.	59.2	56.5	67.7	72.2	63.4
Oil-products	-	5.3	11.7	5.8	8.8
Rolled ferrous & non-ferrous metals	33.1	10.9	3.6	2.3	5.4
Fertilisers	0.4	1.9	1.3	5.6	11.8
Pulp & paper	1.4	3.1	2.9	2.6	7.0

Source: Soviet Review, Vol. VII, January 1970.

As regards the new commodities of Indian exports the Soviet Union is in most cases their leading buyer. According to Indian statistics, in 1968-69 the Soviet Union's share of these Indian export items was as follows: men's shirts 55% woolen hosiery 59%, fruit juice 64%, leather footwear over 52% and batteries about 60%.

In 1968 and 1969 Indian firms received orders for annual delivery to the Soviet Union of one million pairs of leather and woolen hosiery goods worth over 35 million Indian rupees. The large Soviet orders for several new goods helped to ensure the stable development of some of India's small and medium scale industries.

The trade plan of 1970 envisages an increase in total trade turnover, which is expected to reach Rs.300 crores. Soviet imports from India are expected to be Rs.200 crores and Soviet exports to India Rs.100 crores.

Trade Agreement in 1971.

On September 17,1971 India signed a major deal with the Soviet Union here for the processing of Central Asian Cotton and production of textiles and other manufactures.

The deal involved 15,000 to 20,000 tons of cotton a year was expected to provide Indian mills with the much needed cotton and stimulate the industry generally.

The agreement was regarded as a pressure to others in different fields of light industry and coming in the walk of Indo-Soviet friendship and co-operation, it was expected to add a new dimension to the growing trade and economic relation between the two countries. The deal was concluded by a delegation headed by Mr. B.D. Kumar, Joint Secretary in the Indian Ministry of Foreign Trade, and including Mr. K. Kishore, textile Commissioner, and representative of trade and industry.

Soviet sources expect the beginnigg now made for co-operation in the field of textile to enable the Indian industry eventually to protect of the prepared surcharged on the textiles imported into Britain which could further limit British market for Indian textiles. The advantage for the Soviet side would be that it would be enabled to shift the task of producing labour intensive co sumer items, thus releasing resources and man power for more sophisticated field towards fulfilment of plan targets for consumer industry.[1]

Main Principles of the success

The successful development of the Indo-Soviet trade is explained by the fact, that the just and right principle govern it. The main principles are:

Trade and other economic relations between the USSR and India are founded on equal rights, respect for sovereignty, non-interference in the internal affairs and mutual advantage. The trade relations are guided by the

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1. The Hindustan Times, dated 17th September 1971.

principle of the most favoured nation treatment;

There are no barriers and restrictions in our trade;

The Indo-Soviet trade is developing on the basis of long-term agreements and contracts that promote the stabilisation of markets and planned management of the economy. The long-term trade agreement between the USSR and India have led to stabilisation and promotion of Indian exports, to stability of prices and guarantee of the permanent supply of goods required by the Indian economy;

A noteable feature of the Soviet Indian trade is that it has a balanced basis; all financial operations are effected inIndian currency and all amounts earned from the sale of Soviet goods are spent for the purchase of Indian goods. India is not confronted with deficit trade and payment balance while trading with the USSR.

Impact of Trade with the USSR on India's Economic Development

The trade between India and the USSR has been making a considerable impact on the Indian economic scene.

India's trade with the USSR is an addition to the total foreign trade turnover of the country, enabling India to import capital goods and industrial raw materials without

spending anything from her foreign exchange resources. Being mutually profitable, it has been growing at a very fast rate. The USSR is now the third biggest importers of Indian goods. For example, exports to Soviet Union constituted 10.9 per cent of the total Indian exports in 1966-69.

The same can be said about Indian imports from the USSR. Beginning from a meagre amount of Rs.18 million in 1953-54, Indian imports from the USSR increased to Rs.1,855 million in 1968-69 accounting for more than 9% of total Indian import bill.

An important impact of Soviet trade was that it hi helped India to effect the Third Plan break-through in exports. Millions of rupees were saved in foreign exchange. The value of rupee was recognised in the world market. Important equipments not procurable from other countries were obtained from the USSR. The co-operation of Soviet Union and India has a noteable aspect in the field of trade as it has in other fields of economic development.

CHAPTER VI

TECHNICAL ASSISTANCE

1 - Economic Development and Technical Assistance

2 - Difference between capital assistance and the technical assistance

3 - Bombay Technological Institute

4 - Technical Aid in Steel Industry

5 - Training in Heavy Machine

6 - Workshop at Suratgarh Farm

7 - Technical Aid in Power Generation

8 - Technical assistance in Oil Industries

9 - Assessment of Technical aid

Economic Development and Technical Assistance

A developing country requires capital assistance. More than that it requires technical assistance. Underdeveloped economies are generally backward in technology. Developed countries have been making advancement in economic growth on account of their advanced technology. A developing nation must follows this process. Industrial development is practically impossible if technical know-how is not advanced, and without industrialisation economic growth is difficult to achieve.

The chief purpose of technical assistance is to raise intellectual capacity and labour efficiency of a developing nation. Generally technical assistance is provided free to the recipient country. Technical aid is accepted to raise the national income. Some times the donor country may desire to put its own price on technical assistance. Technical assistance requires some facilities. The cost of these facilities and maintenance are taken into account. According to Professor Higgins "the rate at which underdeveloped countries would actually develop would depend on the flow of technical assistance. No doubt there are limitations on the supply of technical assistance, but the limitations on the demand for technical assistance may be proved to be the ultimate bottleneck which determines rates of economic

growth".[1]

Actual economic development of an underdeveloped country may depend on the actual aid the country received from develop-ed countries.

Difference Between Capital and Technical Assistance

Capital assistance is provided in the form of commodities. Technical assistance is provided in the form of providing training personnel. Capital assistance is intended to raise output by increasing the supply of capital in recipient countries. Technical aid is intended to raise output by changing methods of production. Capacity of underdeveloped countries to absorb capital imports is limited. Technical services have also limitations. However, it is not difficult for developed countries to provide capital aid but sometimes they also find difficult in giving technical aid. Improved technology requires large inputs of capital for its practical application. According to Professor Walf, "In theory, technological

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1. Higgins, United Nations and U.S. Foreign Economic Policy, Homewood, Illinois, p. 28.

change implies a possibility of increasing the productivity of existing factors of production. In practice, raising of the productivity of existing factors frequently requires substantial amounts of new factors, as well. Technical assistance, viewed as services only, may change production possibilities in the static sense of what is known without providing the means to change what is done. New production functions may involve a minimum scale of operations beyond the resource capacity of the recipient country. Similarly, the import of capital without technical assistance, may raise output by less than would be possible given knowledge of improved methods of using capital".[1] The fact that the Soviet Union is very highly advanced in the field of technology has been proved.

From the beginning of the First Five Year Plan the USSR started to provide technical aid to India. Since then the Soviet Union is playing a vital role in training Indian in engineering skills, which will prove to be particularly valuable when India undertakes the construction of complex plants without foreign assistance. A trained technical cadre is even more vital to the successful construction and operation of large sophisticated plants than machinery and

1. Charles Walf, Jr. Foreign Aid Theory and Practice in Southern Asia, Princeton University Press, 1962, PP 61-62

equipment. A comprehensive training programme, both at Soviet plants and on the spot in the course of construction, erection etc., forms an integral part of every project that the Soviet Union helps to build. It might be recalled that for the Bhilai Works alone 700 Indian specialists were trained at Soviet metallurgical enterprise and over 5,000 specialists and workers at Bhilai itself. The result of this training can be seen in the fact that the design bureau set up at Bhilai with the help of Soviet specialists was able to prepare independently the detailed Project Report for the construction of the sixth blast furnace complex. Much attention is focussed on the training of Indian personnel. In the last fifteen years, over 2,000 Indian specialists and skilled workers have been trained at Soviet enterprises.

During the construction and commissioning of the various projects over 40,000 Indian specialists and workers were trained by Soviet experts directly at their jobs.

Bombay Technological Institute

Indian specialists are also trained at the Indian Institute of Technology, Bombay which was built with Soviet aid. This higher education establishment was planned for the

trainin; of 1,200 undergraduate and 250 post-graduate students. The USSR is also helping India in setting up four autonomous faculties attached to existing higher-educational establishments for the training of metallurgical engineers, geophysicists, specialists in automation, computer, technology and aeronautical engineering. Four secondary technical educational establishments and educational centre will be set up for training specialists and skilled workers in several very important fields.[1]

Soviet professors and teachers are sent to India through the UNESCO on the basis of bilateral agreements. These Soviet specialists who come to Pawai were expected to serve only in the advisory capacity. Their task was to "advise" their Indian colleagues in planning and running of the Institute, to suggest courses of study and help in preparation of the syllabi. From mere "advisors" they have become teachers of post-graduate classes, originators and supervisers of research, builders of workshops, rolling mills and specialised laboratories, authors of text books on technology specially prepared for Indian students. It is this warmly human, friendly and fraternal spirit which has so endeared them to their Indian students.

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1. Soviet Review, Vol. VII, February, 1970, p. 17.

The Bombay Technological Institute is one of the finest Institutions in the field of technological education. Since 1958 the Institute have been producing hundreds of engineers every year. The Institute have five laboratories, all of them have the most modern equipments imported from the USSR. There is standard laboratories for testing electronic instruments.

The Soviet Union gives two fellowships every year for teachers of the Institute to do advanced research in the USSR. Many UNESCO experts consider Powai as model Institute for training highly skilled technical personnel and hold that its experience can be emulated with profit by similar institutes not only in India but also in other countries of South East Asia. Mr. Chagla once said "This institute is the finest example of collaboration between two countries India and the USSR. It is the finest example of peaceful co-existence and abiding evidence of friendship between our two countries".[1]

Technical Aid in Steel Industry

With the help of Soviet experts the Indian personnels have learned to cope with the modern equipment and the

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1. News and Views from Soviet Union, Vol.XXIV, No.14, Feb.20, 1965.

technique of steel production. This is the main result of joint work at Bhilai. Within a comparatively short period, Indian Steel smelters, blast furnace engineers, rolling mill experts and other specialists learned a great deal from the Soviet specialists. 721 Indian specialists, including 336 engineers and 385 operatives, were trained at Soviet plants for periods varying from 6 to 15 months. Another 1,500 were trained in India of whom 550 received their training in different categories in the construction phases of the projects. Thus 2,200 trained personnels formed the nucleus in Bhilai operation. The Bhilai Technical Institute, built at a cost of over Rs.40 lakhs, started functioning on June 8,1959. It has been designed to train 1,490 persons annually including graduate apprentices, operatives and skilled workers. The institute is provided with a training shop and three hotels to accommodate 600 trainees. It is now fully geared not only to train the personnel required for the expansion of the plant to 2.5 million tons capacity but even to give a hand to other plants in training their men. Of the 1,704 persons who are to be recruited and trained for expansion, 892 are already undergoing training and the remaining 812 will be trained in time before the commissioning of the expansion units.[1]

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1. News and Views from the Soviet Union, Vol. XXIV, No.8, February 2,1965.

Training in Heavy Machine

The Indo-Soviet contracts had stipulated that 220 Soviet experts would come to India to offer technical assistance in the construction of the Durgapure plant and in the erection and commissioning of equipment in the initial stages. Training for the Indian personnel is imparted in different ways. Apart from the in-plant training referred to above, there is provision to train skills workers at the Central Training Institute at Ranchi.

At Durgapur a Central Plan Laboratory is set with technical help of the USSR. The Laboratory is equipped with all facilities for mechanical and chemical testing of materials and parts, including testing by magnetic and invisible ray systems. It is managed by 20 engineers and 40 technicians.

At Hardwar a training school with its ancillary workshops have been set up in the project area. This school provides training for 400 apprentices in each shift. Arrangements for two shifts of 400 trainees each have been made and there is a provision of running the school in three shifts also, to ensure a regular flow of trained personnel for handling various complicated jobs. At present this school has become an important technological centre for training personnel for the further expansion of the heavy

electrical industry in the country.

Workshop at Suratgarh Farm

The Suratgarh farm has a fine workshop. The workshop is equipped with the best Soviet equipments. All the facilities for repairs and over-hauling are available at the workshop where Indian mechanics, trained by the Soviet engineers who had been in charge of the machinery earlier, look after the maintenance and servicing of the machines. All the equipments for the workshop was also supplied as gift by the Soviet authorities. About 200 Indians mostly laymen, were properly trained for handling the machines and heavy equipments. The Soviet engineers rendered their services free of charge.

Technical Aid in Power Generation

Soviet specialists generally share their achievements in power development and experience in running thermal and hydro-electric generating stations with their Indian colleagues.

Since the beginning of Soviet-Indian co-operation, many Indian power specialists have visited the Soviet Union where they have been given every opportunity for studying in detail the experience gained by their Soviet colleagues in power generation, construction and operation of large thermal and hydro-electric power stations, especially those having power plants similar to those supplied by the Soviet Union to India.

Indian specialists familiarise themselves at these plants with the latest methods of building and assembly work, the introduction of new techniques, the organisation and technique of operating generating projects.

Such co-operation is bringing its results. Indian organisations, for example have successfully mastered the use of pre-cast concrete, the erection of high chimney stacks through sliding shuttering, the assembly of plants at thermal stations in large blocks by using powerful cranes. The operation and maintenance of thermal and hydro-electric power stations built in co-operation with the Soviet Union are carried out entirely by Indian personnel. For Bhakra (right bank) power station, three Indian teams went to USSR for higher training. Seventeen Russian experts and three enterpreters were helping Bhakra project. At Barauni power station 37 Soviet personnel were working shoulder to shoulder, with Indian workers. A number of Indian workers

have trained to operate the station. Most of the Russian experts have left Harduaganj and Indian engineers are running the power station.

Technical Assistance in Oil Industries

The USSR is a very advanced country in the field of oil research and production. The co-operation of India with the USSR has resulted in the progress of oil technology in India. Soviet-Indian co-operation in the sphere of oil-industry dates back to 1955, when the first team of Soviet oil-industry workers, paid a visit to India. Since then a number of geological and geogmaphical parties have been conducting researches in India. A great achievement for the public sector oil industry of India was the training of a national cadre of skilled drilling rig operators, having at their disposal over 40 drilling rigs, most of Soviet made, for deep boring. The drilling rigs of Indian prospectors can be seen at work in Gujarat, Assam, Madras, Rajasthan, and other states. In the last few years the total value of drilling work reached the figure of about 1,500,000 meters, with over 700 wells completed. The drilling teams and

engineers have accumulated a good deal of experience in sinking wells, and most of them are doing their jobs independently. The technical equipment for drilling operations makes it possible to undertake the work of prospecting for oil and working the deposits practically in all the known oil-bearing areas of India. The result of drilling work done during the 1968-69 economic year, when 287,000 meters of wells were sunk, show convincing that the drilling rig operators possess all that is necessary for increasing operations.

During the last few years over 850 oil industry workers have been sent to Indian from the Soviet Union for the purpose of rendering technical assistance. They have trained about 3,800 Indian specialists, drilling operators, geologists oil-field workers, designers and geophysicists, who are now independently operating oil fields, doing geological survey and prospecting work, or conducting research at institutes. About 200 Indian engineers and technicians have undergone training in the USSR.

A further landmark in the development of India's oil industry was the setting up of the Hind Oil Design Institute, which carries out an extensive range of work on designing oil-fields installations. Soviet specialists, headed by

L. Mexhlumov, rendered considerable assistance in orga ising the institute. Another institute has also been estab lished for conducting research and for the advanced training of oil industry specialists in the field of geology, prospecting and commercial geophysics, drilling, and exploiting oil and gas deposits.

In order to extend technical aid in surveying under water structures in the Gulf of Cambay, the Ministry of Oil-Extraction Industry of the USSR expressed its readiness to prepare plans for a tailer-designed off-shore drilling plateform, to send to Indo-Soviet specialists in designing, building and erecting off-shore oil field installations and to provide Indian oil-industry workers practical training at oil fields in the Caspian Sea.[1] Soviet-Indian co-operation in the field of oil extraction has developed and gained in strength during the last few years. Hundreds of Indian workers have been trained in the field.

On September 29, 1971 a new declaration between India and Soviet Union has been made about mutual co-operation.

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1. Soviet Review, Vol. VII, February 7, 1970, pp.34-35.

Both the countries noted with satisfaction the successful development of mutually beneficial economic and technical co-operation between the two countries and emphasised the fact that there are favourable prospects for the further expansion and deepening of such co-operation, particularly in the field of iron and steel industry including special steel, alloys and non-ferrous metallurgy survey, exploration and refining oil and natural gas and in the field of petro-chemical industry.

The two sides expressed satisfaction at the recent steps taken by them to identify new forms of mutual co-operation in the economic and technical fields, including such spheres as space research utilisation of nuclear energy for peaceful purposes, productive co-operation between industrial enterprises of both countries. They consider it necessary to identify additional new fields in which such mutual co-operation could be expanded.

In this connection agreement was reached that experts of both countries would meet and work out specific proposals on the above-mentioned questions. The two sided decided to set up an inter-governmental commission on economic, scientific and technical co-operation.[1]

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1. The Hindustan Times, September 29, 1971.

Assessment of Technical Aid

The technical assistance of the USSR to India is very important from the point of view of economic development of the country. The steel plants at Bhilai and Bokaro are standing manuments to Indo-Soviet co-operation in technology. Technical aid in heagy industries and oil industry in India has been praised all over the world. With the technical assistance of the USSR a number of schools and laboratories are providing training to thousands of Indian scientists. In the field of green revolution the techniques of Russian tractors have their important hands. In fact in almost all projects started with Soviet co-operation there is provision for technical assistance. An up-to-date technological institute that can be the envy of any country, scholarship to Indian students and post-graduates for studying and training in the USSR, services of qualified Soviet experts, and the practical training of thousands of Indian specialists on the spot is indeed, an impressive record of unselfish assistance in one of the most vital sphres of our country's industrial advance.

Professor V.K.R.V. Rao, however, holds that it is difficult to quantify the impact of this aid on the supply of technical skills in the country. A mere listing of the

number of experts who have visited India and the number of Indians who have been trained under the various programmes does not go for in indicating the contribution of such assistance."[1]

But it may be said that technical assistance brings brains incentive and know-how. It is a kind of light which removes darkness. One trained person provides training to another hundred. In this way the impact of technical assistance is related directly and indirectly with economic development of the country. Moreover, Russia not only has provided experts and equipments, but has practically demonstrated in actual fields of production also.

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1. V.K.R.V. Rao and Dharm Narain, Foreign Aid and India's Economic Development, Asia Publishing House, Bom-bay 1963, p. 47.

CHAPTER VII

M I L I T A R Y A I D

1 - Difference between military aid and economic aid

2 - Quantity of Soviet aid

3 - Indo-Soviet Treaty of 1971

4 - Assessment

Difference between Military Aid and Economic aid

Like economic aid, military aid also has its own importance. Generally military aid is treated separately than economic aid. Economic aid is disclosed, military aid is not disclosed in detail. Economic aid is provided for the development and economic growth in the country. Military aid is provided for the defence of the country. Military aid is more complex and more strategic than economic aid. Military aid can be regarded as economic aid in the sense that it saves foreign exchange, and also assumesdefence of the country which is a pre-requisite for economic development.

The objectiges of economic aid are those which contribute to the i creasing of the national product or its rate of growth. Economic aid has also a humanitarian objective. It is to rega d the human values on equal terms. The objective of military assistance is generally political. It involves creating capabilities and signifying intension to meet dangerous situation.

The United Nations defines military aid as "transfers of military equipment, grants and loans for the purchase of military equipment or to pay military personnel and

direct military expenditure for the defence of the recipient country".[1]

Quantity of Soviet Aid

The Soviet Union has been providing military aid in sufficient quantity. The exact quantity of the military aid is not known. Yet India has been importing a large quantity of military aid. The defence expenditure of India has been increasing both in the Third Five Year Plan and the Fourth Five Year Plan periods. The defence expenditure continued to rise. The beginning of military aid from the USSR was made in the First Five Year Plan of India. But in 1963-64 it got a historical importance, when the defence minister (Mr. Chawan) visited Moscow for defence pact. Then the agreement was signed between the both countries. The following agreement was concluded with the Soviet Government.

1 - As an extension of the agreement concluded in August 1962 the Soviet Government have now agreed to provide plan and machinery,jigs and tools etc., of Soviet

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1. U.N. Economic and Social Council, International Economic Assistance to the Underdeveloped Countries in 1956-57: Report of the Secretary-General, p. 76.

manufacture to facilitate the early establishment of the MIG complex of factories. They have also agreed that Soviet technical teams will be more closely associated in the preparation of detailed working projects and production schedules. Arrangements for the supply of major assembling parts and rare material were also included in agreement.

2 - Arrangement has been included for the purchase of a certain number of MIG-21 airerafts and associated equipment. The supplies under the August 1962 agreement and the present agreement would enable India to re-equip three of her fighter squadrons with MIG-21 aircraft.

3 - The Soviet Government have also agreed to the supply of certain number of light tanks and associated equipments.

The above purchase will be paid for in rupees which can be used by the Soviet Government for purchase of goods and articles in India according to existing arrangements.

A contract has also been concluded with the Soviet exports organisation for the supply of 20 MIG-4 helicopters.[1]

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1. New York Times, May 13, 1964.

Upto 1964 the total value of military assistance negotiated with the Soviet Union was said to be worth the equivalent of $ 130 million of this, the main items were $ 40 million worth of ground-to-air-misiles, rador equipment, etc. Thirdly AN-12 transport planes,[1] an unknown number of MIG-4 helicopters,[2] of which twenty had so far been delivered, plus a variety of mortars, machine guns, pantoan bridge equipment etc. Six MIG fighters had been delivered.[3] Of greatest long term signfficance, however, was the agreement for Soviet technical and capital assistance in the establishment of three MIG factories in India at Koraput(Orissa), Nasik (Maharashtra) and Hyderabad(Andhra Pradesh). Further deliveries of MIGs were also expected. It would seem that Russia has also indirectly assisted in developing India's capability in the sphere of nuclear weapons construction. An "Atoms for Peace" Agreement, signed in Vienna on February 6, 1961 provides for (Article)[4], Co-operation in research over the uses of plutonium, uranium, etc. Exchange of scientists.

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1. New York Times, October 5, 1960, estimates that these items constituted a value of $31.5 million.
2. The Hindu Madras, August 18, 1961.
3. Financial Times, London, March 14, 1961.
4. The Hindu, Madras, October 7, 1961.

(Article 2) Exact projects to be worked out by subsequent protocal.

(Article 3) The Soviet Union to supply Uranium materials.

(Article 4) The Soviet Union to supply technical assistance where re-quired and equipment for mining and exploration.[1]

Though this agreement is intended to stimulate peaceful uses of nuclear power in India, such a programme, albeit vaguely defined, could doubtless be converted to nuclear weapons production.

Indo-Soviet Treaty of 1971

Recently a treaty was made between India and the USSR on 9.8.1971. The Treaty is military in essence. It is a kind of mutual security pact. The following are the main articles of the Treaty:

1 - The high contracting parties solemnly declare that enduring peace and friendship shall prevail between the two countries and their peoples. Each party shall respect the independence, sovereignty and territorial integerity of the other party and refrain from interfering in the

other's internal affairs. The high contracting parties shall continue to develop and consolidate the relations of sincer friendship, good neighbourliness and comprehensive co-operation existing between them on the basis of the aforesaid principles, as well as those of equality and mutual benefit.

2 - Guided by the desire to contribute in every possible way to ensure enduring peace and security of their people, the high contracting parties declare their determination to continue their efforts to preserve and to strengthen peace in Asia and throughout the world, do halt the arms complete disarmament, including both nuclear and conventional, under effective international control.

5 - Deeply interested in ensuring universal peace and security attaching great importance to their mutual co-operation in the international field for achieving these aims, the high contracting parties will maintain regular contacts with each other on major international problems effecting the interest of both the states by means of meeting and exchange of views between their leading statesmen, visits by official delegations and special envoys of the two Governments and through diplomatic channels.

6 - Attaching great importance to economic, scientific and technological co-operation between them the high contracting parties will continue to consolidate and expand mutually advantageous and comprehensive co-operation in these fields as well as expand trade, transport and communications between them on the basis of the principles of equality mutual benefit and most favoured-nation treatment, subject to the existing agreement and the special arrangements with continuous countries as specified in the Indo-Soviet trade agreement of December 26, 1970.

7 - The high contracting parties shall promote further development of ties and contracts between them in the field of science, art, literature, education, public health, press, radio, television, cinema, tourism and sports.

8 - In accordance with the traditional friendship established between the two countries each of the high contracting parties solemnly declares that it shall not enter into a participate in any military alliance directed against the other party.

Each high contracting party undertakes to abstain from any agression against the other party and to prevent the use of its territory for the commission of any act which might inflict military damage on the other high contracting party.

9 - Each high contracting party solemnly declares that it shall not enter into any obligation, secret or public with one or more states, which is incompatible with this Treaty. Each high contracting party further declares that no obligation exists, nor shall any obligation be entered into between itself and any other state or states which might cause military damage to the other party.

Assessment

The conclusion of the Treaty reafirms that Soviet Union-Indian friendship is based not only on any transient factor, but on long term vital interests of the peoples of both the countries and their desire to develop to the utmost the many-sided co-operation with each other for the purpose of economic and social progress, for safeguarding peace as well as the security of both countries.

Both sided declared their firm determination to be guided by the letter and spirit of the Treaty in regard to the further development of Soviet-Indian relations.[1]

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1. The Hindustan Times, September 30, 1971.

It is not possible to give the impact of Soviet military aid to India, because many facts are not yet disclosed. But one thing is clear that in the time of war between China and India as also between Pakistan and India, Soviet Union supplied considerable quantity of arms. When other developed nations refused India's request of most modern types of war materials, Russia came into help to India. This single fact is sufficient to prove that the military aid of the Soviet Union was an honest work. It is evident that military aid has saved a considerable amount of foreign exchange and thus has indirectly contributed to the economic development of India.

CHAPTER VIII

COMPARISON OF SOVIET AID WITH THE USA AID TO INDIA

1 - The USA and Soviet Policy of Foreign Aid

2 - Political, Economic and Humanitarian Objectives

3 - Kinds of the USA Assistance

4 - American Aid to Indian Agriculture

5 - PL 480 and its Criticism

6 - American Aid and Industrialisation

7 - American Aid to Communication and Transportation

8 - The USA Technical Assistance

9 - Impact of American Aid on India's Economic Development

10 - Contrast between the USA aid and the Soviet Aid

The USA and the Soviet Policy of Foreign Aid

The USA and the Soviet Union both have been providing economic and technical aid to India. The contribution of both the countries to the economic development of India is very great. The USA aid is enormous. The aid of the USSR has its own importance. But the aim and the process of the aid of both the countries are not identical. Their policy of aid differ. The foreign aid policy of both the countries is motivated with their foreign policy. As foreign policy differs from time to time, their aid policy also changes occasionally. Both the countries proclaime that the aim of their economic aid is to facilitate the economic growth of the developing countries. Both desire to win political friends with their aid policy. However, they do not say it openly.

In the early days foreign aid was provided generally in the form of grants. Now-a-days the USA generally provides loans. Generally loan imposes greater responsibility than grant. Loans are intended for high-priority capital projects which either produce revenue or expand a country's infrastructure, including schools and hospitals as well as roads and ports. Loans are provided also for the foreign

exchange cost involved. Most loans are for specific projects, each of which must be checked against a technical and economic feasibility survey. Some loans are also made to finance necessary imports and, in a few cases, to meet short-run balance of payments crisis. Grants entail no repayment obligations and consequently impose no economic burden on the recipient country. The USA regards technical assistance as a vital part of foreign aid. It also gives encouragement to private enterprise. Bilateral as well as multilateral aid are provided. On this background the objectives of the United States in providing aid for economic development of India may be described.

The Policy of Foreign Aid of the USA

The broad outlines of the USA foreign aid strategy and the means of implementing it are determined by the foreign assistance Act and related legislation and the foreign policy of the United States. Since foreign aid is an important instrument of the USA foreign policy, it must be closely related to and compatible with it.

In general, the allocation of aid depends upon the nature and extent of the USA interests, situation and requirements of the recipient country, the ability of the recipient country to make effective use of aid, and the availability of aid from other sources.

Based upon the factors a variety of principles and policies on foreign aid has evolved. Some of the principle and policies of the USA aid are as follows:

The USA believes that economic development is a long term process. It takes considerable time for a developing nation to attain self-sustained growth. It is generally accepted by the USA that a national development plan is desirable. The USA next commitment to finance some projects on plan basis, if economic development is ensured. The USA insists on self-help and performance of recipient country.

It seems that so far economic aid to India is concerned, the United States has political, economic and humanitarian objectives.

Political Objectives

The United States is interested in the economic development of India because India is a democratic country. If India will remain economically strong she may not be in-

fluenced by communists strategies. This is main aid policy of the USA in South East Asia. American aid to India has been politically motivated. For example whenever India was not in favour or acted against the interest of America; the US/ either reduced the amount of aid or even stopped it. However, American leaders realised that political objective has not worked well. As Chester Bowles says "Contrary to the assumption of some diplomatic and military strategists, foreign aid will not enable us to purchase allies and friends. We can no more buy the loyalty of a free individual. Nor will foreign aid even assure the gratitude of a destitute people in Asia, Africa or South America. Gratitude like loyalty is not for sale. If we petutantly seek gratitude we shall assuredly be disappointed".[1]

However, the political motive of aid is still at work. American people by nature are against poverty. They think that there is relation between poverty and communism and therefore they think that to check the spread of communism poverty must be removed.

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1. Chester Bowles, New Dimensions of Peace(New York): Harper and Bros, 1955, p. 295 - S.Chandra Sekhar, American Aid and India's Economic Development, New York, 1965,p.49.

The basic reason for economic and technical assistances to India has been the enhancing political stability through economic improvement. According to P.T. Bauer "The essential American interest in India is fundamentally simple. It is reasonable to suggest that in India, as elsewhere, it is served by the developmentof a society resistent to the appeal of a totalitarian regime, and experiencing economic advance in the sense of enjoying a general rise in living standards.[1]

Another political objective of the aid is to counter aid offered by Soviet Union. As Soviet economic aid has become an increasingly prominent feature of the "co-existence" era, effort to counter it have become an increasingly prominent objective of the USA aid. "Our fundamental objective is a world in which free men can peaceably use their capacities, abilities, and resources as effectively as possible to satisfy their aspirations. We cannot long hope to maintain a free island in a totalitarian world."[2]

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1. P.T. Bauer, United States Aid and Indian Economic Development, Washington, 1959, p. 95.

2. Gustav Ranis, The United States and the Developing Economies, New York, 1964., p.24.

The political objectives of Soviet aid is not clear. Soviet Union, like the USA, believes that economic aid to developing countries is to advance their economic growth. It is said that the Soviet Union provides aid for encouraging neutralism, disrupting the USA alliance system, increasing the "respectability" and the influence of the Soviet Union and of internal communist parties in recipient countries. However, the primary objective of the USSR economic aid so far India is concerned is to enhance the economic development of the country and to win the heart of Indian people. At present the Soviet Union and China are not so close politically. In such a condition it is natural that the USSR should have stronger relations with India.

On the Indian side, deteriorating relations with the United States provided a strong incentive for establishing counter-balancing good relations with the Soviet Union, especially as the latter appeared willing to accept her basic foreign policy assumptions and had declared a doctrine of non-interference in domestic affairs. At the same time, India was preparing to move into a new stage of economic development, with maximum emphasis on heavy industry, especially in the public sectors. In view of World Bank and America hostality towards this types of economic strategy, India

had a strong incentive to accept the Soviet aid.[1]

Economics Objectives

The economic objectives of American aid are those which contribute to increasing the national product or its rate of growth. Reducing barriers to international trade is an economic objective of the USA commercial policy. This policy contributes to expanding the national product. Therefore it is an economic objective. To get facilities for American investors in developing country is an another economic objective. To have markets for exports and to achieve required basic material and opportunities for investment may be included in the economic objective. Some times the economic aid improves the USA terms of trade. Thus indirectly the USA gains more than what she gives directly. "Aid giving is thus viewed basically as a product of enlightened self-interest in which the act of

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1. P.J. Eldridge, The Politics of Foreign Aid in India, Delhi, 1969, p. 53.

giving - and its presumed consequences in terms of enhanced growth and stability abroad provide the benefits".[1]

Soviet Economic objective of aid is not motivated with any idea of profit or gain. Of Course, indirectly Soviet economy is effected by trade with underdeveloped countries. But the USSR is not after creating markets abroad. United States generally provides such commodities as aid which are surplus. PL 480 programme was organised at first to distribute the surplus wheat abroad so that local market may not be badly effected. Economic aid of the USSR is not the distribution of surplus. But it is a kind of sacrifice of her wealth.

Humanitarian Objectives

Sometimes the aids are provided on humanitarian grounds. American people by nature are generous, they are ready to help in difficult situation. They want to remove poverty and disparities between rich and poor. Soviet Union may have also some humanitarian ground for aid. Some economists

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1. Gustav Ranis - The United States and the Developing Economies, New York, 1964, Introduction, p. xii.

do not regard humanitarian ground as an objective of aid at all "Humanitarianism can hardly be described as a national interest or as an important objective of public policy ... governments simply do not act on the basis of such unadulterated considerations."[1] But some times humanitarian objective play an important role in government aid decisions. The point Four Programme is an example of such aid. During the famine of 1951 in India humanitarian consideration played an important part in allocation of US aid to India.

The Process of Soviet Aid and the USA Aid

Soviet assistance usually is provided for specific projects, although there are a few instances of other types of aid. More than half of the Soviet aid is challanged into industrial projects, particularly metallurgical and engineering industries. Projects in Industry, electric power transportation and telecommunications together account for 80% of Soviet assistance. Non-project aid is only 5%, and the balance represents technical assistance. It should be noted, however, that most project loan also include related technical assistance. The majority of

1. Ibid., p. 282.

Soviet loans carry 2½% interest and extend for about 12 years, with repayment usually in local raw materials. In most cases the recipient country must pay all local and foreign exchange costs.

Kinds of the USA Assistance

American assistance to India is extended principally through (1) the USA Agency for International Development; (2) Public Law 480 (food for peace) programme; and (3) the Export Import Bank.

USAID gives both development loans and grants. Loans are repayable over 40 years with no repayments during an initial 10 years grace period during which interest is 1% a year. During the remaining 30 years interest is 2.5% per year.

Approximately half of the US assistance to India has been extended through this programme. Under PL 480 the United States makes available huge quantities of wheat, rice, cotton, maize, milk powder and other agricultural commodities to developing nations. India is the chief beneficiary of the programme. A part of the supplies

received by India represents donations. India pays for the remainder in rupees. Eighty-seven and a half per cent of these rupees are utilised to finance development project in India. The rest is set aside to meet expenses of the USA Embassy in India and for other uses.

Increasingly, the USA owned rupees are being used for programmes which directly benefit India.

The export-import Bank extends loans and guarantees primarily to promote the export and import trade of the United States. Loans given by it are repayable in dollar. Commercial rates of interest are charged: the rates of interest range between 5.25 per cent and 6 per cent. The typical period of repayment in 10 years.[1]

The US assistance has taken three forms: 22 per cent in grants, which require no repayment; 32 per cent is mainly low interest loans repayable in dollars over 40 years; and 46 per cent loans repayable in rupees.

The United States will not utilize these rupees in import of goods from India, and procurement for third countries - possible only with Indian government concent has been confined almost entirely to supplies and equipment

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1. American Reporter, Vol. XV, No.26, December 22, 1965.

for the aid programme in Nepal. There is a limit to the amount of rupees that can be converted into foreign currencies. The maximum would be slightly less than 3% but in practice it has been less than 1%.

The USA aid covers almost all economic sectors. There are approximately 200 agreements between the USA government on the one hand and the Government of India and Indian private firms on the other. One count shows that there are at least 600 private firms, public sector undertakings, river valley projects, power stations, schools, colleges, research and other institutions which have been assisted by the USA aid programme. In addition, the US non-project loans have provided foreign exchange for import of necessary goods by enterprises throughout the country.

American Aid and Indian Agriculture

A key objective of the US aid programme is to help India become self-sufficient in food and to increase the production of other agricultural commodities. The US foreign exchange assistance for Indian agricultural development exceeds $600 million (Rs.450 crores). This amount includes fertilizers supplied through non-project loans. In addition, the US has extended loans and grants totalling

Rs. 583 crores in rupees from PL 480 sales proceeds.

P.L. 480

During the last 12 years India has received large quantities of foodgrains, cotton, and other agricultural commodities under the PL 480 programme. The PL 480 programme not only saves India from foreign exchange expenditure of a large magnitude. It also provides rupees resources for economic development.

A sum equivalent to 6.6% of the total is reserved for loans to private enterprise - is well-known "cooly loans", and 13.2% is reserved for the US Government uses. But a substantial part of this amount, too is utilised to promote a number of activities beneficial to India, such as agricultural research grants.[1]

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1. American Reporter, Vol. XVIII, No.16, August 30,1968.

Table

Level of food-imports through PL 480(crores of Rs)[1]

year	Total imports of foodgrains value	PL 480 import of foodgrains value	Percent of food grains imports through PL 480
1956-57	108	33	55.6
1957-58	165	96	58.2
1958-59	151	88	58.3
1959-60	150	91	60.7
1960-61	213	150	70.4
1961-62	117	64	64.7
1962-63	166	107	65.5
1963-64	197	162	62.2
1964-65	282	240	85.1

1. P.J. Eldridge, The Politics of Foreign Aid in India, pp. 112-3.

PL 480 helped India through times of crisis. It helped in stabilising food prices in the country.

Criticism of PL 480

There has been some criticism on PL 480. Professor Shenoy says that PL 480 assistance has tended to strengthen the inflationary forces. He also maintains that PL 480

assistance induced increased domestic hoarding of commodities.[1] It has been also argued that its indirect effects are determintal to the economy and to that extent involve a social cost. Two such indirect determintal effects are pointed out:

a) disincentive to the farmer to increase his output, and

b) inflationary influence in the economy.[2]

The Indian Government has drawn up a programme to achieve self-sufficiency in food production and set 1972 as a target for ending US Pl 480 imports.

Through PL 480 the United States has accumulated a very high amount of rupees. This accumulation of rupees is capable of disturbing of Indian economic structure and her financial condition at any movement. This is a great danger to India. The food supplies by the USA under PL 480 were carried to India by American flag vessels. Indian ships were not allowed. This was also an embarrassment.

To evaluate the Soviet aid and the USA aid in the field of agriculture in India is not an easy task. The contribution

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1. A. Vasudevan, The Strategy of Planning in India, Meerut, 1970, p. 158.

2. M. Bal Subhramaniam(article in) Impact of Foreign aid on Indian economic development, p. 31(footnote).

of the USA to Indian agriculture is enormous. So is the aid from the USSR. In quantity and in quality the USA aid is unparallel. The Soviet aid seems to be dwarf before the USA aid. However, the Soviet aid is productive in nature while the USA is distributive. Soviet Union provides tractors and other equipments for increasing agricultural product. Farms like Suratgarh cannot be compared with terms of wheat and therefore Soviet aid in the field of agriculture is a real help. Food aid supplied by the USA under PL 480 was surplus food. India has provided an outlet for American's surplus agricultural product. To give a surplus thing as a gift cannot be regarded as a real sacrifice. The United States in a way has gained some thing by supply surplus food to India. Soviet Union, on the other hand, has sacrificed her wealth in providing equipment and machinery to agricultural farms of India.

American Aid and Industrialisation

The USA aid has played an important role in Indian industrialisation. The Indo-American Technical Cooperation Agreement on February 5, 1952 may be regarded as starting point for American assistance to India's industrial development. For the last three five year plan period hundreds of

major projects were taken up with American assistance. We shall indicate only the important contribution of the USA to industrial development of the country.

Iron and Steel

Initially, the US assistance programme provided 336,345 long tons of steel for use by the Indian railways, by industries that manufactured hospital equipment, oil drums, containers, pipes tubes, and machinery, and by the river-valley development programme. A steel pool was established to facilitate the distribution of imported steel. A steel-casting foundry an essential prerequisite for developing a successful system of railways for the manufacture of large steel castings was established at Chittaranjan, West Bengal, as an ancillary project to the Chittaranjan Locomotive Work. The bulk of the work in the foundry consists of manufacturing locomotive underframes, twein-seam cylinders, and manganese steel railways crossing and points. All these heavy steel castings hitherto imported from abroad, are now produced in India.[1]

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1. S. Chandrasekhar, American Aid and India's Economic Development, Washington, 1965, p. 108.

The USA also supplied iron and steel for making agricultural implements, soil testing equipment, boats and cold storage for fishery modernization, tube-well casting, machinery for boring tube-wells, tractors, combines and other agricultural machines, modern silos and diary and poultry equipment.[1]

American assistance to Indian steel industry has been considerable. But the impact of Soviet aid on Indian steel industry is deeper and possesses lasting importance. Steel mills at Bhilai and Bokaro and Ranchi Heavy Machine-Building Plant, are great monoment in the development of Indian industry.

Soviet Union, on the other hand has gained prestige by providing and assisting great steel projects and thus enabling India to march on the path of industrial growth.

Power Development

In the field of power development, India has received more assistance from the United States than from any other

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1. India's Development and Economic Aid, New Delhi, p.31.

country participating with India in her economic development programme under the Five Year Plans. The total US aid stands at Rs.594.1 crores)$ 1,247.6 million). It consists of $ 428.3 million (Rs.204 crores) in foreign exchange and Rs. 390.1 crores in rupees derived from the sale of agricultural commodities supplied to India under US Public Law 480 and section 402 of Public Law 665. Details of US assistance to Indian power projects follows

Both the Soviet Union and the United States have contributed to India's power generation and both are more or less equal in this field. Assistance of both the countries have been helping India in her green revolution. Soviet - Indian Cooperation in Power generation in India is based on friendly relations between the Soviet and Indian peoples and on the unshakable principles of disinterested support to people who have won independence and who are developing their national economy. The American Indian Cooperation in the field is based on friendly relations. The United States has a keen desire to see India as a developed and strong country. Assistance in power generation is a proper step in this direction.

Table ____

American Aid to Indian Industrial Development
1951-61

(IN MILLION $)[1a]

Purposes	Amount
Capital equipment for such industries as Jute, cement, automobile, rayan, paper etc	298.2
Mineral development	21.2
Financial institutions	25.0
Industrial research organisation	12.3
Nuclear engineering and research	1.4
Electric-power generation	162.1
Rural electrification and electrical distribution systems.	3.4
Steel supply	145.8
Total	669.4

Source: Fact sheet on US Economic Assistance to India, New Delhi: USIS, 1961.

a: Only the foreign exchange component.

American Aid to Communication and Transportation

The US has provided grants and loans totalling $292 million(Rs.139 crores) of the foreign exchange needed to improve India's transportation system and Rs.20 crores from PL 480 funds for road building.

Railways

The US aid to Indian railways ttal $ 259 million (Rs.123 crores) in the intial stages it consisted of steam locomotives and railway wagons to carry freight. Since 1954, the US has supplied India with 100 steam and 345 diesel locomotives and 8,700 railway wagons. In 1956 the United States signed agreements to supply 259,000 tons of steel for railway development. The United States has also supplied a number of electric locomotives and coaches.

Indian Railways have now begun building their own diesel locomotives, and diesels assembled in India are already in operation. The large American aided diesel factory at Varanasi has an annual capacity of 150 locomotives this probably will be increased to at least 250 by 1971. Most diesel components now are imported, but ultimately the plant will make most of the parts.

Road Buildings

The United States has extended a grant of Rs.20 crores to improve India's 15,000 mile national highway system.

The money is being used to increase thickness of road crust and to surface road with cement, concrete, or bitumen, and to build high way bridges, including two large bridges across the Brahmaputra river in Assam, and the Mahanadi river in Orissa.

Motor Vehicle Production

The United States has extended loans totalling $77.5 million)Rs.36.9 crores) to three Indian firms to expend their production of motor vehicles by 30,000 a year. The firms are Premier Automobile Ltd., Bombay, Tata Engineering and Locomotive Co.,Ltd., Jamshedpur, and Hindustan Motors Ltd., Calcutta. With the USA assistance Hindustan Motors is also increasing its product on of power shovels by 24 annually. These three firms account for most of India' automobile production.

In addition to these credits, non-projects loans extended by the United States to the Government of India have been used for issue of licences to import large quantities of vehicle components.

Aviation

The US credits of $11 million)Rs.5.2 crores) have helped India to make rapid strides in civil aviation. The money has helped Air India to purchase its fleet of six huge boeing jet liners. The US aid programme also has provided equipment worth $2.9 million(Rs.14 crores)for improved navigational aids to facilitate faster and safer domestic flights.

Port Development

The United States has helped enlarge the capacity of Vishakhapatanam port, principally to permit the berthing of large iron-ore carrying ships. The port development is a part of the Orissa iron ore project in which Japan is also co-operating. This project, to which the USA extended a credit of $.18.4 million(Rs.8.8 crores), has developed iron ore mines at Kiriburn in Orissa, and constructed a railway link between mines and the existing rent way system serving Visakhapatnam port to facilitate ore movement. The port has been deepened and ore loading equipment installed iron ore exports already earn additional foreign exchange for India, and these earnings are expected to increase.[1]

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1. India's Development and Economic Aid, New Delhi,pp.35-37.

The posts and telegraphs department of the Government of India has established at telecommunications Research Laboratory in New Delhi. The total amount provided for this project was $47,000. American assistance has also been received by All India Radio and by the Post and Telegraphs Department for training its personnel and for modern scientific equipment. And the USAID is responding to a Government of India request for technical assistance in the development of a far-reaching radio system to bring information and knowledge to villagers, on whose participation so much of India's progress depends.[1]

The Soviet Union has not provided aid for Transport and Communication.

U.S.A. Technical Assistance

The USA has provided equipment for five engineering colleges at Guindy, Howrah, Kharagpur, Poona and Roorkee. More than 130 American professors have served or are serving at these institutions, helping India to improve the quality of post-graduate and teacher-training programme.

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1. Ibid. p. 46.

The Indian Institute of Technology, Kanpur, assisted solely by the USA, is one of five institutions established by the Government of India with the goal of providing the best technical training available by international standards. The institute has 29 American professors. The USA aid programme has supplied a considerable amount of equipment to the institute, including an IBMI 620 computer, one of the largest functioning in India.

The USA aid touches all levels of Indian education. From elementary education to University education, from production of better text-books to summer science institute USA grant have their considerable impact. In fact there is not any university in India which has not been receiving American aid in one form or other. For instance, Aligarh Muslim University has a Kennedy House which is a symbol of American co-operation in the field of education. A number of American foundations were also active in spreading of knowledge and cultural values. They are now closed.

If we compare the USA and the USSR technical assistance some differences are clear. The USA has provided more dollars than that of USSR to technological education. The USA has also provided more teachers than that of the USSR. But Soviet Union provided more technicians and field

workers to India than that of the United States. Moreover, Soviet Union provided know-how of key industries while the USA was not ready to disclose the technique of heavy industries. Soviet Unions contributions to the technique of oil industries is unique. Again America tried to introduce its one ideas on society and life. Behind American money and equipment is hiddin the American ideals and cultures. Some times it takes the form of propaganda, and occessionally American foundations engaged themselves in undesirable activities that is why Indian Government forced to close the American foundations working in India So far cultural centres of the USSR are concerned they do not go beyond the limit nor they are engaged in political activity. They generally provide leasons in Russian languag

India's private industries have also received the US loans through the Industrial Finance Corporation. The I.F.C. extends loans to private industries. It also helps in gettir foreign capital for the industries. In December 1960 $10 million allocated to Indian industries. In 1962 a loan of $30 million was again sanctioned to private industries. The following table shows the volume of the USA aid to private industries in India.

A number of small projects and institutions have been receiving American aid for their specific function. Community Development Programme has received financial help from the Ford Foundation. Social Welfare Education has been also assisted by the USA. The central labour institute got assistance to raise the living standard of i dustrial labourer. The Bombay craftsmen training centre has been also assisted by the USA. Public administration has been emphasised in India. Some assistance has been provided by the USA for special training in management. The Indian Statistical Institute at Calcutta obtained the services of two American specialists, hundreds of books and periodicals on management from the USA.

The USA has been assisting in a number of health projects designed to assure a more healthy India. Institutio which have received US assistance include the All India Institute of Medical Sciences, New Delhi, and seven medical colleges at Baroda, Cuttack, Hyderabad, Indore, Jaipur, Mysore and Trivendrum.

India had upto 1964 received Rs.2,60,25 crores(5,4653 million dollars) of assistance from the USA for economic development of this assistance totalling Rs.648.8 crores ($1,362.9 million) has been in the form of grants Rs.829.4 crores($1,741.9 million) as loans repayable in dollars and

Rs.1,124.3 crores($ 2,361.1 million) on local currency repayment basis.

Thus, only 32% of total American aid to India involves repayment in foreign exchange. The bulk of this amount bears very low rates of interest and is repayable over a period of 40 years. Nearly 25% of total USA aid is in the form of grants. The loans repayable in rupees constitute 43% of the total. The repayments not only save foreign exchange but also do not entail export of goods from this country.

Out of the total assistance of Rs.2,602,5 crores committed so far aid from the Technical Co-operation Mission has amounted to Rs.250.3 crores. Development loans(repayable in dollars) from the USA Agency for International Development have totalled Rs.558.5 crores.

D.L.F. Credits

Development loan fund has extended credits to the extent of Rs.243 crores, repayable in rupees. Grants and loans under PL 480 programmes have amounted to Rs.277.2 crores. This is exclusive of the wheat loan of 1951 amounting to Rs.90.3 crores repayable in dollars and Rs.2.6 crores of non-repayable emergency food and famine relief grants.

The Export Import Bank has given Rs.180.6 crores of loans repayable in dollars since the beginning of the currency financial year, there have been seven loans from the AID and to form the Export-Import Bank, totalling Rs.64.8 crores($ 136.1 million). The largest among these loans amounting to $50 million, is intended for maintenance of imports.[1]

Impact of American Aid on India's Economic Development

The United States, by providing India with large-scale aid, has given the country sufficient economic independence to enable her to pursue an independent foreign policy of non-alignment. By maintaing a policy of non-alignment including the communist countries, which can aid only the public sector.[2] American aid has made India capable of increasing her exports. The United States has contributed eo englarging the sources of funds, for investment and for operating for private sector. In short through foreign exchange, through raw materials, through machinery and

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1. The Hindustan Times. August 15,1964.
2. S.Chandrasekhar, Op.cit., p. 179.

equipment, American aid has contributed to India's economic development.

On account of American assistance India today is self-sufficient in production of steam locomotives and passenger and goods wagons. The country exports goods wagons A diesel locomotive factory has been constructed at Varanasi, and production of electric locomotives has begun at Chittarangan. The number of trucks and other tyred commercial vehicles have increased from 116,000 in 1950-51 to approximately 320,000 in 1964-65. In the same period there has been a 50% increase in the mileage of surface road; Indian-owned shipping tonnage has increased by three times; the number of telephones in use has gone up by four times, and freight carried by Indian Railways has increased from 91.5 million tones to approximately 196 million tones. The total investment in Indian economic development from April, 1951 through March 1965, amounts to Rs.18,110 crores of which Rs.3,6882 crores(or 20.3%) has been foreign assistance.[1]

To show impact of foreign aid on India's economic development is a complex task. Development is not a water-

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1. India's Development and Economic Aid, New Delhi, p.3.

tight compartment. Everything is related and dependent on one another. Therefore it is difficult to point out a particular impact of the USA aid on a particular branch of India's economy. However, the US shares about 50% of the total foreign aid to India and therefore the USA must be given credit for economic development of India.

Since India's planned and concerted development efforts begun in 1951, total real output has grown at an average annual rate of nearly 4%; agricultural output has increased at about 3%. The 1964-65 growth rate of 7.3% indicates that the country may be able to do much better in the future. Both food and total production have increased at rates consistently higher than the annual population growth, although the margine has not been sufficient over a long enough period of time to sharply increase per capita income and consumption.[1] There is no doubt that the USA has played an important part in India's economic growth.

Constrast Between the USA aid and the Soviet Aid

The USA and the Soviet Union both have provided

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1. Ibid., p.3.

substantial aid to India. But there is some difference in magnitude, terms and conditions of aid and approach in providing assistance to India. The American aid is larger in total than the Soviet aid. But from the point of view of population of India and per capita basis the USA aid is lower, perhaps lowest, than the aid provided to many other countries. Again the USA is the richest country. From the point of view of the total income of the USA, the aid provided to India is very meagre. Soviet Union, on the other hand, provided larger economic aid to India than the aid she has given to other countries. The Soviet Union is not so rich as America. Her per capita income is lower that that of the USA. From the point of view of total income of Soviet Unio , the aid provided to India is greater than that of the USA. India received more aid than the rest of the commonwealth put together-about 55% of the help obtained by Commonwealth countries in the 1960-63 period. But in per capita terms India, with about 12 shillings and six pence, was below the commonwealth average of about 16 millions.[1]

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1. The Hindustan Times, November 30, 1965.

Table

Comparison of the Soviet and the USA aid

Country	Cumulative commitments as of 1965 in millions of US dollars.		
	USA Aid	Soviet Aid	Percentage per head population
India	5,882	1,022	1.8
Pakistan	2,937	94	4.4
Turkey	2,120	2,218	7.5[1]

Mr. I.M.D. Little and J.M. Clifford have shown that from the point of per head of population India's average share total aid is lowest except that of Indonesia.[2]

It is also important to note that aid from the USA was spread over a decade, whereas aid from the Communist Power started after the First Five Year Plan. The Soviet aid begun to flow in substantial measure in 1955 when India received Rs.64.71 crores. Thereafter, despite other demands due to developments in Eastern Europe, Soviet assistance, far from slowing down expended and diversified. In 1957

1. Lloyd.D.Black, The Strategy of Foreign Aid, London,1967, p. 108.International Aid by IMD Little and JM Clifford, London, 1965, p.166.

2. International Aid, p.66.

India received Rs.59.53 crores. In 1959 the Soviet aid reached the maximum, the amount being Rs.200 crores. The proportion of Soviet aid to India grew steadily from practically zero during the First Plan to under 6% during the Second Plan and under 12 during the Third Plan. Further more,the bulk of this aid was concentrated on the Soviet Union, which supplied over 90% of the total aid from this source through the entire period.

The share of the United States in total aid utilisation by India was over 70% in the First Plan, over 55% in the Second Plan, and over 58% in Third Plan. It is clear that the USA aid to India has been declining occasionally while the Soviet aid has been increasing during the Third Plan period.

The majority of Soviet loans carry 2½% interest and extend for about 12 years, with repayment usually in local raw materials. The majority of the USA loans carry 4 to 5% interest. For instance, the US Government has offered a loan of Rs.11.9 crores)$25 million) to the Government of India to finance the purchase of American capital equipment and services required for development projects. The loan,

advanced through the USA Export-Import Bank, is repayable over a period of 12 years from 1967. It bears interest at 5 per cent.[1]

In the Third Five Year Plan period terms of interest of the USA aid was rather softer and the grace period was extended to forty years. As the amount of the US loan is greater India has greater difficulty to pay back the loan obligations. In June 30,1968 the United States of America debt on India was 1,522,22 crores. The debt is repayable in foreign currency and therefore it is very painful for India to pay the debt in due time. The Soviet Union debt on India on June 30,1968 was 386.40 crores. But the loans repayable to the USSR are through export of goods. It is not very difficult to pay the loans in goods. Moreover in such a way the exports of India get extended. The USA aids have not been subject to similar condition.

There is a difference in approach which is of direct relevance to the effectiveness of foreign assistance in the Indian setting. Communist assistance tends to be concentrated in a reasonably circumscribed range of activities. Most Eastern assistance is found in programmes which are clearly Russian or Rumanian or Czechoslovakian. With a few

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1. The Hindustan Times, August 26, 1966.

exceptions, aid from the democratic nations is spread broadly through the full panorma of Indian life".[1]

The Soviet assistance usually is provided for specific projects. More than half of Soviet aid is channeled into industrial projects, particularly metallurgical and engineering industries. The USA, on the other hand, has not been in favour of India's rapid industrialisation. Professor P.T. Bauer writes: "Neither the rate of economic development, nor the growth of industry, nor the rate of capital formation, depends on the growth of specific types of heavy industry. In no meaningful sense is the prior development locally of the capital goods industry necessary either for material prosperity, or for the subsequent development of manufacturing industry itself."[2]

According to Professor Jagdish N. Bhagwati while the relationship of Soviet bloc aid to the USA aid is generally complementary, Soviet aid has occasionally made for greater manoeuvrability on the part of India by allowing for a competitive edge through offers of aid finance and know-how for projects which the west could not, or would not, help

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1. Wilfred Malenbaum, East and West in India's Development, National Planning Association, 1959, p.51.
2. P.T. Bauer, Indian Economic Policy and Development, Bombay, 1961, p.60.

to implement a phenomenon of particular importance in oil refining and steel. As it turns out, Soviet aid has been used almost exclusively for projects in the heavy industrial sector, including power, coal, drugs, steel and oil.[1]

Another contrast between Soviet aid and the USA aid is that Soviet aid is provided to public sector projects. The USA, on the other hand, gives preference for the private sector. Professor Wilfred Malenbaum maintains that philosophy of development: industrialisation in heavily, rapidly, and in the public sector. Inter-governmental discussions with the Soviets are not concerned with precisely how this course of action will bring about general growth and in particularly, how it will relate to the progress of India's large and important private sector. India seeks to retain an economy where relatively free market forces will always play an important role.[2] Certainly India has a mixed economy. It has a free market yet heavy industry and rapid industrialisation is necessary to solve the problem of unemployment which is very acute in India. Professor Malenbaum again states that "thus the East entered dramatically upon the Indian development scene; this very act made unmistakably clear its views on the importance of

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1. Jagdish N.Bhagawati and Padma Desai, Indian Planning for Industrialisation, London, 1970, p.183.

2. W.Malenbaum, Op.cit., p. 53.

rapid and heavy industrialisation in Indian economic growth" Professor Mohammad Shabbir Khan, however does not agree to this statement.[1]

The Soviet aid has no string or tying. On the other hand, US imposes restrictions with respect to source, project and commodity tying. US aids have strings. Loans from the D.L.F/A.I.D. which prior to October 1959 were 'untied' have since been 'tied' to purchase in the USA. "The fact that the entire amount of these loans was not exhausted in purchases from the USA, though the aid was fully utilised, leads to the inference that a part had been used for purchase from the soft currency area. Considered along side the fact that these tied loans could not subsequently be used for purchases outside the USA, the foregoing suggests the tying up of these loans to purchase in the USA. This inference is supported by the further fact that in several cases we have had to pay prevailing in other countries, so that, if left free to purchase wherever we liked, we would have gone in for purchase from some other

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1. Ibid., p. 7. Cf. Mohammad Shabbir Khan, Planning and Economic Development in India, Asia Publishing House, Bombay, 1970, p. 44.

markets. This would not hage been truer of those items in which US specialised and in which a high price carries an offsetting advantage. But it would certainly have been true of many others. Moreover, tied aid for specific projects may have the further effect of channeling imports of spare parts and of equipment".[1]

On the other hand, supporting the tying of USA aid Professor John Lewis says "quite plainly the strongest factor motivating United States aid earmarking in India, however, is simply the desire of the United States government, in the interests of adhering to its own procedural standards, to retain substantial accountability and control over the United States expenditures. Such retention is constitutionally and politically required - the United States Congress being unwilling to make a larger delegation of its spending power to the government of India than it is to the government of the United States. Moreover, regardless of the legalities and politics of the matter, most conscientious United States aid official are unwilligg to make the initial assumption upon which the whole "overwhelming economic case" against strict aid earmarking rests. They are unwilling to

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1. V.K.R.V. Rao, and Dharm Narain, Foreign Aid and India's Economic Development, Asia Publishing House, Bombay, 1965, p. 88.

make the blanets assumption that Indian planning is uniformly sound or, even less, tha. the planned development scheme will be faithfully excuted in all of its particulars. They insist on retaining some right to participate in decisions made as to Indian uses of American funds and some right to review the results. And these impulses, combined with the mixture of American diffidence and Indian aloofness that has kept the United States Government at arm's length from general development planning in India, have strongly inclined United States officials towards discrete, manageable, and measurable projects in which they can satisfy their own requirements for programme and administrative review with a minimum of inter governmental embarrassment.[1]

Military Aid

So far military aid is concerned, both the countries have given substantial help to India. At the time of Indo-China war, Soviet Union as well as United States provided almost-equal aid. But there was one difference. While Soviet Union was prepared to and egen started the MIG project in India, United States was not even ready to provide anything

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1. J.P. Lewis, Quite Crisis in India, Asia Publishing House, Bombay, 1962, p. 278.

like MIG complex not to speak of to start such project in India. This single fact is sufficient to prove that Soviet aid had been based on sound foundation.

Marshall I. Goldman has made the following critical observations on the evaluation of Soviet and USA aid:

1 - The Russians have a knack for the spectecular. Many of their major impact projects excite the imagination and often have productive and visible results.

2 - The Russian publicize their projects widely, often through visits of top Soviet Officials to the receipient countries, thereby focussing both domestic and world attention on Soviet aid projects and making them household words. By contrast, most Americans are enable to name even one US aid projects, and few are aware of such outstanding achievements as the Volta Dam in Ghana and the new Turkish Steel Mill at Eregli.

3 - Major Soviet triumphs create the impression that the Soviet are more adept than the Americans at handling foreign aid. A close look at Soviet and American aid projects in Africa, however, reveals that, just as we have had our successes that no one seems to have heard about, the Russians have had their failures that have gone unnoticed. These include roads that wash away, equipment that rests in moist

tropical climates, cement that hardens on the docks, empty hotels, and bulldozers that break down.

4 - The Russians are still relatively new to the complex business of foreign aid. Often they are too eager to please and find it hard to say no to countries rejects by the West as poor economic and political risks. Often, they are in too much of a hurry to allow time for feasibility studies. They assume that what is suitable in the USSR is also suitable in the tropics.

5 - Soviet equipment is of poor quality and/or is not adopted to tropical areas.

6 - The USSR is usually faster than the US in announcing a new loan but slower in implementation.

7 - Like the USA, the USSR has discovered that acceptance of its foreign aid does not necessarily assure acquiescence in its policies, friendship, or even gratitude. For example, during the cuban missile crisis, Guinea denied the Soviet permission to land Cuban-bound planes at the Soviet-aided airport in Conakry. Guinea also expelled the Soviet Ambassador for interference in domestic affairs. The United Arab Republic and Algeria accept Soviet largeness while continuing to arrest local communists.

8 - The Soviets seem to be moving away from economically useless stadiums and are tending to concentrate more on directly productive activities.

9 - One of the most painful lessons for Russian officials must have been the discovery that mistakes in foreign aid are not an American monopoly.

In summary, it may be said that Sino-Soviet bloc aid programme have had some measure of success in relation to their own objectives and also from the stand point of recipient countries. It is a fact, however, that Bloc aid alone has not led to the installation of a single communist regime in a single recipient country.[1]

Whatever else may be said about it, Soviet aid to India clearly has had an impact. The Russian are involved in virtually every important branch of heavy industry in India. Even though the United States has made a large commitment of resources, Russian aid on the whole has been of a more enduring nature. American grain shipments

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1. Lloyed D. Black, The Strategy of Foreign Aid, London, 1967, pp. 105-106.

are consumed and forgotten. Russian steel mills and oil refineries, despite their imperfections, are of a lasting and monumental character. The United States passed up the one dramatic chance it had to construct an urgently needed steel mills at Bokaro. This would have provided an impact that matched or exceeded any of the Russian projects. Unfortunately, bec use of so much opposition in the United States, an opportunity was lost. At the same time, for some reason, impressive American projects such as the Sharavathi Dam received little publicity. Thus, despite numerous short-comings and a smaller expenditure of money, Soviet projects in India has succeeded better than those of any other country in capturing the admiration and appreciation of the Indians.[1]

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1. Marshall I. Goldman, Soviet Foreign Aid, USA, 1967, p. 114.

CHAPTER IX

C O N C L U S I O N

The evaluation of the impact of Soviet aid on India's overall economic development is not easy. The contribution of aid to productive capacity depends on the overall policies of the recipient country. Utilisation of aid and other administrative activities are connected with the total impact of the aid. However, we have taken into consideration the character and amount of Soviet aid and have already pointed out the impact of Soviet aid on the economic development of India in the previous chapters while discussing the Soviet aid in connection with industry, agriculture, trade, military etc. Soviet aid is still going on. It will take considerable time to see the full fruit of Soviet aid in India. However, I shall now attempt to bring together the main aspects of the Soviet aid in respect to the economic development of the country.

In the field of industrialisation of India the Soviet aid has its deeper and more wide impact than other realms of Indian economy. The aid to public sector has an immense significance. Dozens of very large enterprises have been built up in India or are currently under construction in the state sector of India with the help of the Soviet Union.

Among these giant enterprises are the Bhilai Steel Plant with an annual production capacity of 2.5 million tones of steel, the metallurgical plant in Bokaro with the annual capacity of 1.7 million tones of steel, the Heavy Machine Building Plant in Ranchi with an annual capacity of 80,000 tones of machines and equipment, the Mining and Allied Machinery Plant in Durgapur with an annual production capacity of 45,000 tones of Machinery, the Heavy Electrical Equipments Plant in Hardwar producing steam and hydraulic units with an over all power capacity of 2.7 million Kw a year, the Oil refineries in Barauni and Koyali each processing three million tons of crude oil annually, medical industry plants coal mines, power stations and other enterprises. Extensive assistance is also given by the USSR in the prospecting for oil and gas.

The Bhilai Steel Plant was the first giant plant built by the joint efforts of India and the Soviet Union. It is consequently regarded as a symbol of Soviet-Indian friendship. At present, the construction of another large metallurgical plant at Bokaro is underway with the Soviet assistance. Its planned capacity is four million tons a year; in the first stage alone the plant will

manufacture 1.7 million tons of steel annually. The plant will produce steel sheets by hot and cold rolling. The enterprise was designed taking into account the latest advances in the field of metallurgy. It will have 2,000 cubic-meter blast furnaces where steel will be smelted with oxygen, and a new type of mill for continuous hot and cold rolling will be used for making steel sheets upto 1,850 mm wide and from 0,4 to mm thick. With the commissioning of the first stage of the plant India will be able to considerably reduce its imports of rolled steel sheets.

The Bhilai Steel Plant is now the largest metallurgical enterprises in India. It accounts for about 30% of the country's steel production. Since the plant began operating in 1959, Bhilai has smelted 13 million tons of steel. The products of the Bhilai plant not only meet the demands of the country but are also exported. In 1969 India exported over 700,000 tons of different kinds of rolled metal and pig iron worth over Rs.300 million.

One of the most significant contributions of the USSR to India's economic development is its co-operation in heavy machine building industry. The great complex in Ranchi

is the outcome of daring and forseeing vision. Already, the plant in Ranchi has manufactured for the steel plant in Bokaro over 28,000 tons of various items of heavy equipments and complex metal structures. Besides, it has manufactured all the equipments for the sixth blast furnace complex of the Bhilai steelPlant which required 12,000 tons of mechanical equipment and metal-welded structures. Altogether, the plant in Ranchi has already supplied Indian industry with 80,000 tons of equipments. The volume of its production is growing from year to year. At the same time, the Soviet enterprises are fulfilling orders for 13,000 tons of standard equipments, most of which will be used by the Ranchi Heavy Machine - Building Plant in fulfilling orders for the Bokaro Steel Plant. The Soviet organisations supplied to the Durgapur Plant, building metal structures and all the necessary equipments as well as the designing and process documents required for starting production. The introduction of modern process has made it possible for the plant to master the quality production of 48 items. The plant turns out multiple centrifugal pipes of various capacities and types, mine winches and lifts upto 1,600 Kw belt, chain and scraper conveyors, sectional and main ventilators, battery operated and diesel locomotives, reduction gears of various kinds, and other types of mining equipments. Mastering the production of rock-and coal-loading

and cutting machines as well as of drilling and other equipment is in progress.[1] The Russian are involved in virtually every important branch of heavy industry in India.

The USSR is one of the largest supplier of power-generating equipments to India. Fifteen power stations have so far been constructed with its collaboration. Among these, the Bhakra, Right Bank Hydro-Electric Power Station and the Neyveli Thermal Power Station are the biggest in the country with the capacity of 600,000 KW each. The Soviet Union has also helped the country in the development of the largest and most complex coal-washery at Kathara in Bokaro Coal Fields and two underground mines at Banki and Manipur.

In the field of drugs and medical industry also the Soviet Union help has been substantial. A surgical instruments plant constructed at Madras with the Soviet help has already been commissioned. The other plants which have been built with the Soviet co-operation are the Antibiotics plant at Rishikesh and the synthetic drugs plant at Hyderabad. These have already started commercial production of a number of drugs.

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1. Soviet Review, Vol. VII, February 7, 1970, p. 23.

A very important factor facilitating the construction of new plants is the training of India's industrial personnel. The mastering of the production of such complex items as metallugical and mining equipments called for a large number of highly-qualified engineers, technicians and workers. Over 240 Indian specialists and workers of the Heavy Machine-Building Plant and over 200 workers of the Mining and Allied Machinery Plant have undergone practical training at the Soviet Plants and designing organisations.

From the very beginning the Soviet specialists have been working at the construction sites of the above enterprises as consultants in close collaboration with their Indian colleagues. The Soviet Union sent to those enterprises over 700 specialists - designers of blast furnace, rolling mills, coke batteries and mining equipment, process specialists and foundrymen, experts in the treatement of precision and special-purpose components, tool-makers, consultants in the organisation of production, adjusters, instructors and other specialists.[1]

The long-range programme for the development of the oil extraction industry in the public sector of India, embracing the period of two Five Year Plans, is estimated to exceed, in terms of necessary allocations, ₹12,000 million,

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1. Soviet Review, Vol. VII, February 7, 1970.

and what is significant is the fact that while during the Fourth Five Year Plan period(1969-74) it is envisaged to spend 4,00 million rupees on prospecting for oil and gas, in the next Five Year Plan period, the amount is proposed to be doubled. The Commission's programme of work includes drilling 1,200 wells with a total length of 3,000,000 meters. During the period of the Fifth Five Year Plan it is proposed to concentrate on off-shore drilling. The target of oil output for 1979 has been riased to 14 million tons, including four million tons from off-shore oil-fields. During the entire period of the Fourth Five Year Plan it is intended to extract 26 million tons of oil.[1]

The significance of foreign aid in oil industry is generally clear, and the contrast between the roles played by the Soviet bloc and Western countries equally clear. Apart from some assistance in the construction of product pipe lines, Western governments have given no assistance to the public sector, leaving the initiative to private firms. By contrast, the Soviet Union had authorised Rs 57 crores by the end of 1964(24.9% of the total Soviet aid upto then) towards public sector projects in the oil industry. This

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1. Ibid.

industry is perhaps the most politically sensitive of all Indian industries in that the question of foreign domination of crucial supplies arises in its most dramatic form. At the same time it represents an important test case in the perennial domestic struggle as to the correct respective roles of public and private sectors. In this context the political significance of Russia's contribution to India's public sector development, by contrast with western aloofness, can scarcely be over-estimated.[1]

The Soviet assistance in agriculture is also remarkable. The Soviet tractors have made a history in Harayana and Punjab. The Farms of Suratgarh and Jetsar have been changing the face of Rajasthan. From the field trials, the farm management has now been able to judge the best thriving varieties, and this determines cropping schedule. The market value also determines the cropping pattern. For example, cotton which is a cash crop is now being grown in a big area. In 1963 and 1964 the area under cotton was 1,040 acres as against over 300 acres in the Second Five Year Plan period. It is a striking achievement of the Suratgarh farm to have successfully harvested in the dry region of a desert belt such crops that are mostly sown in the western region. In the early period of trials, even

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1. P.J. Eldridge, op.cot., p. 133.

experts were doubtful of the result because for the first time in Rajasthan, crops of wet regions were being sown in the parched soil of the desert. It goes without saying that the achievement of the Suratgarh farm will have a tremendous impact on the future of agricultural development of India, "Crop yields are increasing as a result of several factors: availability of improved seed stock, introduction of new crops, rising availability and consumption of fertilisers and plant protection chemicals, relatively slower progress in irrigation development, some improvements in the field machinery, and improvements in knwoledge and management on the part of some farmers. The effects of these factor changes are not easily discernible in national statistics because they have been over-shadowed by violent swings in the weather cycle and widely fluctuating monsoons".[1]

The rapid development of Indo-Soviet trade can be attributed mainly to the nature of trade agreements concluded between the two countries. Trade relations between the two countries are based on long-term bilateral agreements. These are of great help to India as they facilitate imports from

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1. S.C. Mathur,(Ed): Agricultural Policy and Food Self-Sufficiency, Associated Publishing House, New Delhi, 1970, pp. 147-48.

the Soviet Union by exporting to it an equal volume of Indian goods and settlement of all accounts in rupees instead of foreign exchange. A large part of the imports from the USSR is in the form of foreign aid shipments which consist of mainly machinery and equipment. Other items of imports from the Soviet Union are fertilisers,non-ferrous metals, news print, sulpher, oil products, chemicals for the manufacture of medicinal products, dyestuff, pulps and paper etc. On the other hand India's exports to the USSR which are utilised for repayment of the aid received, consist mainly of traditional goods, tea, jute, jute goods, spices, cashewnuts, etc; the demand of which tends to be relatively inelastic. India found it advantageous to trade with the Soviet Union as the latter, being a socialist economy, is in a position to project the consumption needs in advance. Absence of tariffs on goods imported into the Soviet Union from developing countries combined with the above factors assure India of more or less stable demand and stable prices for its goods.

By 1975, India's exports to the USSR are expected to rise to the time of 325 crores. They may consist not only the traditional items like tea, jute, etc; and non traditional items like shoes,handicrafts, readymade garments etc., but

may also include shophisticated items like machinery and equipments manufactured at the Soviet aided projects. During the seventies India might also enter into joint ventures in Third countries. As the developing countries would be needing machinery and equipment for their developmental activity and the Soviet Union is likely to help these countries in setting up such plants, India can aspire to share these market with the Soviet Union.

The Government of the USSR had allowed India till the end of 1968 eight long-term credits, amounting according to rupee-rouble ration at Rs. 1021.11 crores(1,225.36 million rouble). These credits are being used for building 65 industrial plants and other projects in the public sector, out of which 30 have already been gone into production.[1]

The Impact of the Soviet Assistance on Indian Economy

The Soviet assistance has had a very positive impact on the growing industrial economy of India. Eventually, it will lead to industrial capacities as follows:

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1. Soviet Review, Vol. VII, January 31, 1970,p.26.

Industry	Designed annual capacity to be created in the Soviet aided plants
Steel Ingots(in million tons)	4.9
Coal(in million tons)	6.2
Oil (in million tons)	6.5
Refining capacity(in million tons)	6.0
Power Generation(mill Kw)	3.0
Heavy Electrical Equipments(in million Kw)	3.2
Heavy engineering equipments for steel mills. Coal mines,Oil drill ng etc(in thousand tons)	125
Antibiotics (in tons)	300
Synthetic drugs (in tons)	850
Intermediate chemicals(in tons)	4,500
Surgical instruments(in million pieces)	25
Precision instruments(in thousand nos)	133
Aluminium smelting(in thousand tons)	100

In the last fifteen years since the signing of the Bhilai agreement, the economic relations between India and the USSR have grown steadily. It is not only the direct Soviet credits of over Rs.1,021 crores which have contributed to the growth of industrialisation in our country. The Soviet Union has also helped training a large number of Indian technicians for running various industries.[1]

1. Soviet Review,Vol.VII,January 31,1970,p.32.

A comparative analysis of the impact of aid from the USA and the USSR is not so easy at the present moment. Although American aid to India constitutes the largest share, because of the diffused and piecemeal nature, coupled with features like multi year financing and programming, poor utilisation, political uncertainties etc., its impact on India's industrial development is not effectively felt. In contrast, the Russian aid, although relatively small in quantum, is concentrated in specific industries and is more in the nature of aid through trade; hence the impact is favourably felt. The United States has made a large commitments of resources, the Russian aid on the whole has been of a more enduring nature. American grain shipments are consumed and forgotten. Russian steel mills and oil refineries, are of a lasting and monumental character. The Soviet aid to India clearly has had an impact. In American foreign aid budget, India has no important place at present. Future prospects are uncertain and will depend on India's attitude - an international problem. On the other hand, the Soviet aid has been increasing and co-operation in both the countries may continue in the future. "There is a deep abiding, and invisible psychological effect arising from a greater knowledge and consequent better appreciation of mutual merits, difficulties, and problems. The fact that

a powerful and affluent nation is sympathetic and helpful to India and will stand behind her materially and morally in case of serious difficulties is very reencouraging to India".[1]

Over fifteen years, dependence of the Indian economy on external assistance has grown rapidly, both in absolute and in relative terms. As such, external debt position of the Government of India has increased tremendously in magnitude from Rs. 32.03 crores in 1951 to Rs.2,192.32 crores in 1965.[2] Repayment involves not only diminution of our savings but also transfer of foreign exchange resources. Our repayment burden would have been appreciably greater, but for the fact that a substantial amount of the Soviet assistance utilised by the country consists of loans to be repaid in rupee. However, it should not be taken that rupees payment does not involve any burden. The task of raising internal resources for repayment is by no means easy.

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1. S.Chandrashekhar,American Aid and India's Economic Development, Fredrick A. Praeger, Publishers,New York, 1965, p. 205.

2. Report on Currency and Finance, 1964-65, Reserve Bank of India, Statement 58.

The Soviet aid has thus played a positive role in the development of the Indian economy. India looks forward to a strengthening of the existing economic and political relations between the two countries. How far this is possible will depend on the plans which the USSR has for setting up new ventures, for supplying the necessary raw materials, spares and components for the existing plants and for fabrication of machinery for the more sophisticated branches of Indian industry.

Mrs. Indira Gandhi, Prime Minister of India, in a message to the Soviet Land Magazine says, "Since attaining independence, the people of India have pursued the path of planned economic development. Our aim is to overcome economic backwardness to modernise our society and to achieve self-reliance. In this endeavour, we have received co-operation and help from the Government and people of the Soviet Union. We greatly value this co-operation. It has contributed to the further strengthening of the friendly ties between our two countries as well as to the cause of international friendship -" I hope that the friendship between our two nations will continue to growth".[1]

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1. Soviet Review, Vol. VII, January 31,1970.

The relation of two nations are not permanent. Everything changes in time. The foreign policy of a country also changes according to international conditions. So the future of collaboration between the Soviet Union and India in the sphere of economic development cannot be properly predicted. However, throughout the period of aid India has been able to maintain her freedom to act. She has her own economic policy. She does not like to be dictated by any aid giving country. She is determined to achieve economic growth through democratic manner. On the whole the Soviet aid has been helpful in this direction.

APPENDIX A

Principal Countries Supplying Aid For India's Economic Development
(April 1951 - May 1968)

Country	Amount Authorised by Aid-Providing Country (crores of Rs)	Amount Utilised by India (crores of Rs.)
United States	6,361	5,847
Federal Republic of Germany	802	688
Britain	620	553
USSR	1,032	546
Canada	501	385
Japan	332	254
France	156	67
Australia	57	54
Czechoslovakiya	99	44
The Netherlands	52	37
Yogoslavia	94	26
Poland	65	21
Italy	153	20
Switzerland	36	20
Austria	21	14
Belgium	21	10
Norway	9	9
Denmark	14	7
New Zealand	6	5
Sweden	7	3
Hungary	25	-
Bulgaria	11	-
World Bank	756	650
I.D.A.	666	632

Note: Aid providing countries are ranked in order of of amounts of aid utilised by India.

Source: American Reporter, Vol. XVIII, No.16, August, 1968.

APPENDIX B

CHRONOLOGY OF SOVIET-INDIAN ECONOMIC CO-OPERATION

February 2, 1955: An agreement providing for Soviet technical and economic assistance to India for the construction of a modern integrated iron and steel ingots is signed between the governments of the USSR and India, in New Delhi. Under the agreement the Soviet Union grants a credit of Rs.64.74 crores for this purpose.

October 11, 1955: Representatives of the Soviet Union, India and UNESCO signed a protocal regarding assistance to India for setting up a technological institute in Bombay. The institute will be built with the Soviet contributions to UN Technical Assistance Fund. The Institute will train 1,500 students and 500 post-graduates. It will have three faculties offering a course of training in 32 different branches of technology.

April 25, 1955: The Soviet aid experts submitted to the Government of India a draft five year plan of prospecting oil and gas deposits in India involving an expenditure of Rs.30 crores.

May 25, 1955: A contract under which the Soviet Union agrees to supply three deep drilling rigs and the serfices of the Soviet oil experts is signed.

August 15, 19 : Work starts on the Suratgarh Central Mechanised Farm, the biggest farm of its kind in the whole of South-East Asia.

January 1957: The recommendations of the Soviet team which came to India to advise the Government of India on the establishment of a heavy engineering industry are published. Therecommendations include the setting up of a heavy machine building plant with an initial capacity of 45,000 tons and a coal-mining machinery plant with an initial capacity of 30,000 tons, capable of expansion at a later stage.

April 20, 1957: The first well is spudded at Jwalamukhi(Punjal The choice of Jwalamukhi as the first drilling site was made in consultation with Soviet experts.

August 1957: The Government of India accepts the recommendations of the Soviet team, setting the initial capacity of the heavy machine-building at 45,000 tons. The starting capacity of 30,000 tons for the coal mining machinery plant is approved.

November 9, 1957: The Soviet Union grants a second credit of 112.5 million roubles(Rs.59.53 crores) to India for the construction of the following industrial projects in India:

Heavy Machine Building Plant in Ranchi with the initial capacity of 45,000 tons;

Coal Mining Machinery Plant in Durgapur with the capacity of 30,000 tons;

Optical Glass Factory in Durgapur; Thermal Power Station in Neyveli with the capacity of 250 MW;

Coal Mines, Coal quarry and an electrical and mechanical workshop in Kabra.

December 1957: Contracts in terms of the November credit agreement for the Heavy Machine Building Plant at Ranchi and the Coal Mining Machinery Plant at Durgapur are signed between the Soviet Union and India.

May 8, 1958: Gas is struck at test well No.1 at Jvalamukhi.

May 7, 1959: Contract for the construction of a 250,000 kilo watt. thermal power station at Neyveli, near Madras with Soviet assistance is signed in New Delhi. The contract signed in accordance with the November 1957 agreement, provides for the preparation of blue prints, delivery of Soviet equipment and materials, training of Indian personnel and technical assistance in the erection of the station.

May 29, 1959: India and the USSR sign an agreement in Moscow on cooperation in the construction of an antibiotics plant in Rishikesh with he annual capacity of 300 tons, a synthetic drugs plant in Hyderabad with 850 tons annual capacity, and a surgical instruments plant in Madras.

July 23, 1959: Letters are exchanged for additional grant by the Soviet Union to the Government of India for gift equipment to set up a farm-machinery repair plant in Suratgarh and for deputation in this connection of a group of the Soviet specialists to India.

Septembeer 12,1959: An agreement for the Soviet credits of Rs.178.58 crores for a number of industrial projects under the Third Five Year Plan of India is signed in Moscow.

September 28,1959: An agreement for setting up a refinery at Barauni with the Soviet assistance is signed. A Credit of Rs.11.91 crores is granted under the agreement.

February 12, 1960: India and the USSR concluded an agreement providing for mutual cooperation in expanding: Heavy Machine Building Plant, at Ranchi to the capacity of 80,000 tons of heavy engineering items a year;

Bhilai Steel Plant to the capacity of 2.5 million tons of steel a year; Coal Mining Machinery Plant in Durgapur to 45,000 tons a year:

Neyveli Thermal Power Station to a capacity of 400,000 KW. The agreement also provides for cooperation in the construction of Precision Instrument Plant in Katah, for construction of Heavy Electrical Equipments Plant in Ranipur(Hardwar), for manufacturing turbines and generators of 2.7 million KW annual capacity and electrical machines of 515,000 Kw annual capacity, for the construction of 200,000 Kw Thermal Power Station in Kabra and a 250,000 KW Thermal Power Station in Kabra Cooperation is also providided for oil and gas prospecting in some parts of India done by the Oil and Natural Gas Commission.

February, 1960: A contract is signed between the Heavy Engineering Corporation (HEC) and the Soviet organisation V/O prommash expert, for the supply of working drawings for the main production and ancillary shops of the Coal Mining Machinery Plant at Durgapur on the basis of 30,000 ton initial capacity.

June 16, 1960: An agreement for technical collaboration in the exploration, development and production of oil and gas is signed in New Delhi.

July 15, 1960: An agreement for the import of 1.5 million tons of petroleum products, including Kerosene, high-speed diesel oil and aviation turbine fuel from the USSR, is signed in New Delhi.

August 17, 1960: The first Soviet tanker, "Uzhgarod", arrive at the Bombay port with about 11,300 tons of high-speed diesel oil.

February 21,1961: A Soviet-Indian agreement is signed for cooperation in the building of industrial enterprises and other projects in India and the 112.5 million rouble(Rs.59.53 crores) credit is granted by the Soviet Union. The agreement provides for rendering India technical and economic assistance for the construction of the right bank hydro-electric station in Bhakra with an output capacity of 480,000 Kw; for the oil refinery in Koyali to process 2 million tons of crude oil a year, for a coal washery in Kathara of 2,000,000 tons annual capacity for a refractory materials plant with a capacity of 125,000 tons a year and for oil and gas prospecting and extraction by the Oil and Natural Gas Commission in Cambay, Ankleshwar and other places.

A contract for the supply of the first two 50,000 Kw units for the Mettur-Tunnel Hydro-Electric psoject is signed between the Madras Electricity Board and the Soviet Trade Organisation "Machino export".

June 17, 1961: A contract for the construction of the Barauni Oil Refinery in Bihar, with a capacity of 2 million tons of crude oil annually, signed in New Delhi. The contract provides for the supply of equipments and materials as well as technical assistance by the Soviet Union.

December 1961: A contract is signed between the Uttar Pradesh Electricity Board and the Soviet-Trade Organisation "Technopromexport" for the supply of Detailed Projects Report and Working Drawings for the Obra Thermal Power Station.

February 12, 1962: A contract for the preparation of project Report and Working Drawings for the two million tons refinery near Koyali, north of Baroda in Gujarat, is signed in New Delhi.

December 21,1962: An agreement for delivery, durigg 1963 of 300,000 tons of furnace oil from the USSR is signed in New Delhi.

May 25, 1963: A Protocal on the Soviet aid for the expansion of oil refineries at Barauni(Bihar) and Koyali(Gujarat) and for establishing a Mechanical Instruments Plant in Palghat(Kerala) is signed.

June 4, 1963: A contract providing for the practical training to 37 Indian specialists at Soviet oil fields is signed in New Delhi.

Another contract forthe supply of Soviet drilling, equipment for carrying out the programme of geological and exploratory work, under the Third Five Year Plan, is signed in New Delhi.

July 3, 1963: In pursuance of the agreement of February 21, 1961, signed between the Government of the USSR and India, a contract for the delivery of complete equipment for 480,000 KW. Bhakra Right-Bank Hydro-Electric Station is signed in New Delhi between the Soviet foreign trade organisation and the Punjab State Electricity Board.

August 14, 1963: A group of 37 Indian oil technicians of the oil and Natural Gas Commission leaves for the USSR for specialisation in various branches of oil technology.

August 17, 1963: Agreement is reached on the delivery to India by the Soviet Union of a fifth 120,000 Kw units for the Bhakra right-bank Hydro-Electric Station. The Power output of this electric station will increase from 480,000 KW to 600,000 KW.

September 16, 1963: A contract for setting up a coal washery at Kathara in Bihar with the Soviet assistance is ginged in New Delhi.

September 29,1963: The 5,000th Soviet tractor is handed over as a Soviet gift to Mr. Prakash Rao, the best farmer, at a special function in Calcutta. Speaking on the occasion the Chief Minister of West Bengal Mr. P.C. Sen, highly commended the Soviet Union's assistance in the development of agriculture.

October 1,1963: The Soviet Ambassador to India, I.A.Benedikto hands over in New Delhi to the Indian Red Cross Society, a new batch of 100,000 doses of live polio vaccine, as a gift of the Soviet Red Cross Society.

October 11,1963: A contract is signed between the Oil and Natural Gas Commission of India and the Soviet Organisation V/O Technoexport in New Delhi. It provides for the delivery by the latter, of oil equipment value at Rs. 8 crores.

November 1963: A contract for the construction of a Thermal Power Station in Harduaganj(U.P.) with the technical assistance of the USSR is signed in Lucknow.

December 2, 1963: An agreement under which the USSR would supply 200 million doeses of small pox vaccine to India is signed in New Delhi.

December 28,1963: The Indo-Soviet trade turnover in 1963 amount to Rs.50 crores each way as planned.

January 10,1964: A contract for the preparation of detailed Project Report and Working Drawings for the establishment of a Mechanical Instruments Plant at Palghat(Kerala) is signed in New Delhi, between the Indian Government and V/O "Prommashexpert", a Soviet trade organisation.

March 2,1964: A programme of cultural and scientific exchange between India and the Soviet Union for the year 1964-65 is signed in New Delhi by the Education Minister of India, Mr. M.C. Chagla, and the Chairman of the USSR State Committee for Cultural Relations with Foreign Countries, S. Romanovosky. The new programme provides for greater exchange in the fields of science art and culture, compared to that of 1962-63.

March 9,1964: A contract is signed in New Delhi between the Neyveli Lignite Corporation and Technopromexport of the USSR for the supply of equipment machinery and materials, worth Rs.7.75 crores, for the expansion of the Neyveli Thermal Power Station from 250 MW to 400 MW.

April 29,1964: A contract for the supply of one more unit of 120 MW to the Bhakra Right-Bank Hydro-Electric Station is signed in New Delhi between the Punjab State Electricity Board and Technopromexport of the USSR. The installation of this unit, the fifth generating set at the station, will increase its total capacity to 600 MW, making it one of the biggest hydro-power station in India.

May 7, 1964: A contract for the supply of Soviet agricultural machinery for the first stage of the Jetsar Mechanised Farm in Rajasthan - the second biggest of its kind in the whole of Asia is signed in New Delhi by the representative of the Ministry of Food and Agriculture of India and the Soviet Trade Organisation V/O Traktoroexport. Though it is intended to plough up initially only 10,000 acres, the area under cultivation will be gradually increased to 30,000 acres.

May 9, 1964: The construction of a coal washery with 3 million tons annual capacity begins at Kathara.

May 20,1964: A contract is signed in New Delhi between the U.P. Electricity Board and the Soviet Trade Organisation Technopromexport, under which the Soviet Union will deliver equipment for the Soviet-aided Albra Thermal Power Station, with 250,000 KW capacity. India will pay for Soviet equipment from the credits granted under the agreement signed in September 1959.

May 21,1964: A Thermal Power Station of 24,000 KW is launched at the Barauni Oil Refinery in Bihar.

June 2,1964: A Contract amounting to over Rs.3 million for the supply of eight drilling rigs, URB-2A, for structural drilling, and spare parts for oil and transport equipment is signed in New Delhi between the Oil and Natural Gas Commission and the Soviet Trade Organisation "Technoexport".

July 7, 1964: A contract for the supply of equipment and materials, and for rendering technical assistance for the establishment of a precision instruments plant at Kotah (Rajasthan) is signed in New Delhi between Instrumentation Limited, a Government of India undertaking, and the Soviet Trade Organisation, V/O Promashexport. The contract provides for the supply from the USSR of 616 tons of machinery, equipment and instruments costing Rs.133.7 crore lakhs. On achieving full capacity, this public sector plant will produce electromagnetic and electronic instruments and accessories with a total capacity of 138,000 instruments

and 400,000 transmitting elements.

The State-owned Indian Oil Company signed in Moscow another long-term agreement with the "Soyuzneftexport", the Soviet Oil exporting agency, to meet the demand for more petroleum products in India. Under the agreement, which will be operative during 1964-66, the Indian company will import a total of approximately 1.8 million tons of oil products, about 500,000 in 1964, 800,000 in 1965 and over 400,000 tons in 1966.

August 1,1964: The Soviet Survey ship "Akademik Arkhangelsky" arrives in Madras port to carry out off-shore prospecting for oil and natural gas near the mouth of the Cauvery river.

The Minister of the USSR, Chairman of the State Production Committee for power and Electrification, P.S. Neperoshny, arrives in New Delhi to take part in the official ceremony of commissioning on August 5, 1964 of the first stage of the Neyveli Thermal Power Station built with Soviet assistance. The construction of the first stage of the Neyveli station, with a capacity of 250,000 KW, was completed when its 5th unit was commissioned in April 1964.

September 11,1964: India and the Soviet Union today signed an agreement for the supply of Soviet defence equipment to India.

October 18,1964: The tool shop of surgical Instruments Plan in Madras is put into operation.

November 5,1964: Four contracts are signed in New Delhi between the Soviet Trade Organisation V/O "Machinexport", Moscow, and the U.P. State Electricity Board, Lucknow, for Soviet assistance in the construction of Harduaganj "B" Power Station. These contracts cover the delivery of equipment and materials, the preparation of working Drawing, training of engineers of U.P. State Electricity Board in the USSR and deputation of Soviet specialists to India for technical assistance in erection and commissioning of the equipment.

January 25,1966: The Soviet Union will provide a credit of Rs.100.5 crores to meet the foreign exchange cost of the first stage of the Bokaro Steel Plant under an agreement signed today.

August 9, 1971: The famous Indo-Soviet Treaty of 1971 was signed in New Delhi.

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